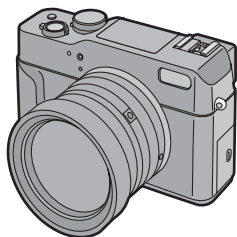
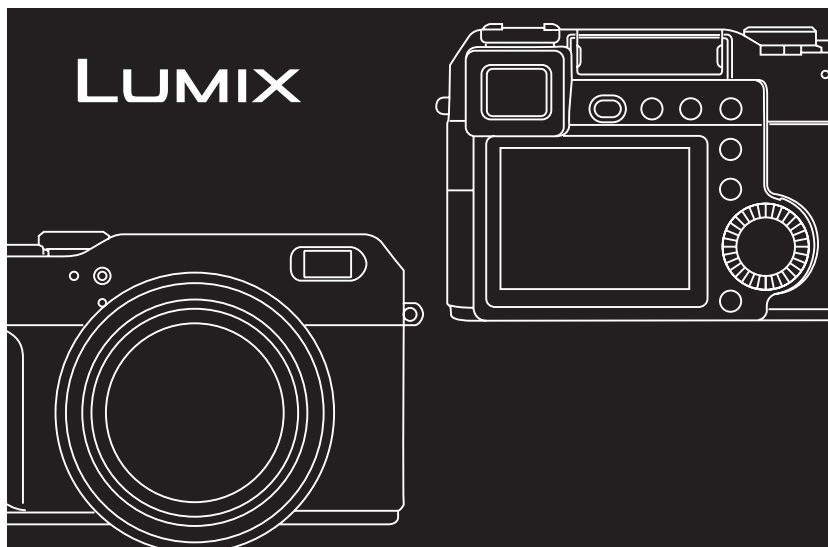


Panasonic



Digital Camera Operating Instructions

Model No. **DMC-LC1GN**



LEICA
DC VARIO-SUMMICRON

Before use, please read these
instructions completely.

VQT0H07

Dear Customer,

We would like to take this opportunity to thank you for purchasing this Panasonic Digital Camera. Please read these Operating Instructions carefully and keep them handy for future reference.

Information for Your Safety

WARNING

TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD AND ANNOYING INTERFERENCE, USE ONLY THE RECOMMENDED ACCESSORIES AND DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE. DO NOT REMOVE THE COVER (OR BACK); THERE ARE NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

Carefully observe copyright laws. Recording of pre-recorded tapes or discs or other published or broadcast material for purposes other than your own private use may infringe copyright laws. Even for the purpose of private use, recording of certain material may be restricted.

- Please note that the actual controls and components, menu items, etc. of your Digital Camera may look somewhat different from those shown in the illustrations in these Operating Instructions.
- SD Logo is a trademark.
- Other names, company names, and product names printed in these instructions are trademarks or registered trademarks of the companies concerned.

IF THE POWER CORD OF THIS EQUIPMENT IS DAMAGED, IT MUST BE REPLACED WITH AN ELECTRICALLY APPROVED POWER CORD.

THE SOCKET OUTLET SHALL BE INSTALLED NEAR THE EQUIPMENT AND SHALL BE EASILY ACCESSIBLE.

CAUTION

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Extremely high precision technology is employed to produce the LCD monitor/Viewfinder screen. The result is more than 99.99% effective pixels with a mere 0.01% of the pixels inactive or always lit. However, this is not a malfunction and does not affect the recorded pictures.

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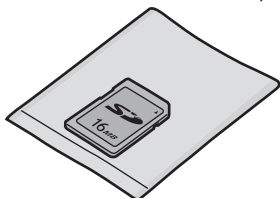
Standard Accessories

Before using your camera, check the contents.

■ **SD Memory Card (16 MB)**

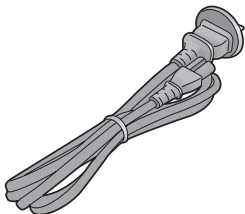
RP-SD016B

(In the text, it is indicated as “Card”)



■ **AC Cable**

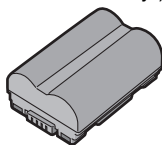
K2CJ2DA00002 or K2CJ2DA00011



■ **Battery Pack**

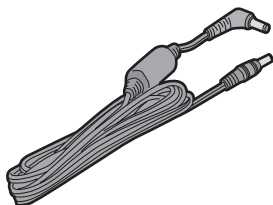
CGR-S602E

(In the text, it is indicated as “Battery”)



■ **DC Cable**

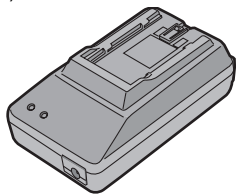
K2GH2DB00003



■ **Battery Charger/AC Adaptor**

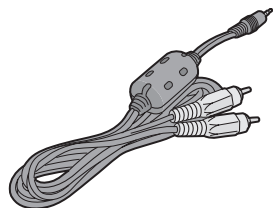
DE-972B

(In the text, it is indicated as
“AC Adaptor”)



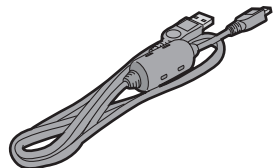
■ **AV Cable**

K1V204C10001

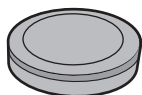


■ **USB Connection Cable**

K1HA05CD0004



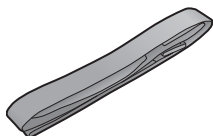
■ **Lens Cap**
VYK1F94



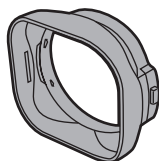
■ **CD-ROM**



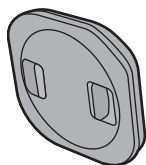
■ **Strap**
VFC4037



■ **Lens Hood**
VYQ2884



■ **Hood Cap**
VYK1C96



■ **MC Protector**
(Filter diameter: 69 mm)
DMW-LMC69



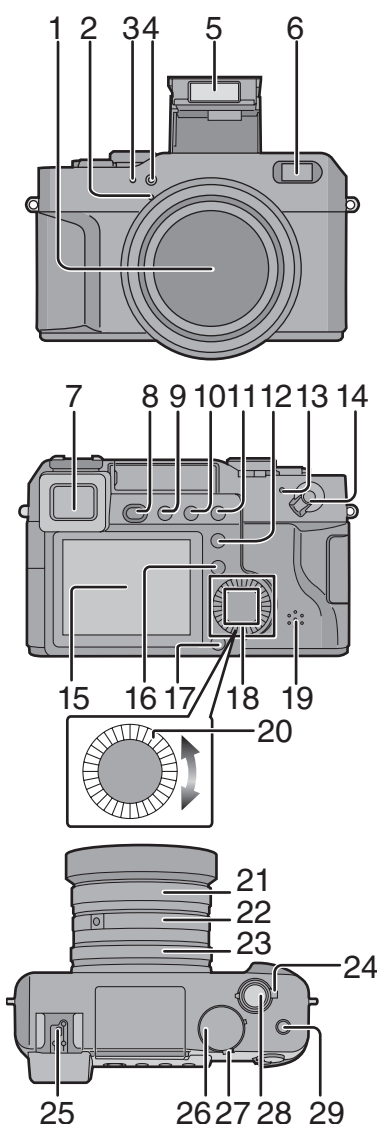
■ **Remote Shutter**
DMW-RS1



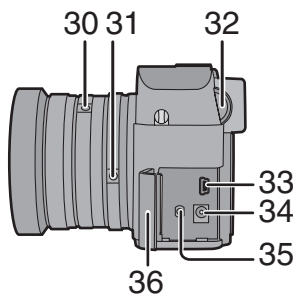
- Please order VYC0913 as repair parts.

- Please order VYC0917 as repair parts.

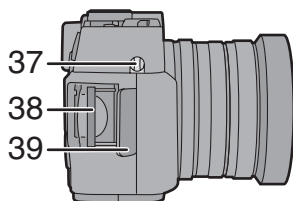
Names of the Components



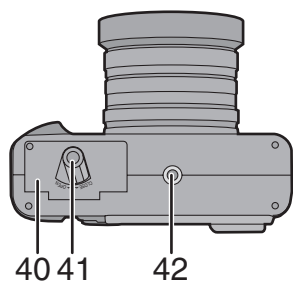
- 1 Lens
- 2 Microphone (P59, P69)
- 3 White Balance Sensor
- 4 Self-timer Indicator (P49)
- 5 Flash
- 6 AF Sensor
- 7 Viewfinder (P26)
- 8 Flash Open Button (P44)
- 9 [EVF/LCD] Button (P26)
- 10 [DISPLAY] Button (P26)
- 11 Exposure Compensation (P47)/Auto Bracket (P48)/Flash Output Adjustment (P45) Button
- 12 [FUNCTION] Button (P60)
- 13 Power Indicator (P22, P35)
- 14 Camera Switch (P22, P34)
- 15 LCD Monitor (P26, P111)
- 16 [MENU] Button (P22)
- 17 Delete Button (P55)
- 18 Cursor Buttons
 - ▲/Self-timer Button (P49)
 - ▼/[REVIEW] Button (P42)
 - ◀ Button
 - ▶ Button
- 19 Speaker (P76)
- 20 Command Dial
- 21 Zoom Ring (P43)
- 22 Focus Ring (P34, P40)
- 23 Aperture Ring (P30)
- 24 Metering Mode Dial (P29)
- 25 Hot Shoe (P105)
- 26 Shutter Speed Dial (P30)
- 27 Operational Mode Dial (P29)
- 28 Shutter Button (P34)
- 29 Flash Button (P44)



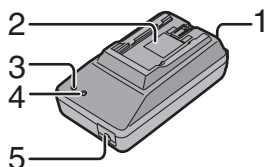
- 30 Focus Ring Button (P34, P40)
- 31 Aperture Ring Button (P30)
- 32 Diopter Adjustment Dial (P27)
- 33 [USB] Socket (5pin) (P97)
- 34 [DC IN] Socket (P13)
- 35 [AV OUT/REMOTE] Socket (P94)
- 36 Terminal Door



- 37 Strap Eyelet (P19)
- 38 Card Slot (P15)
- 39 Card Door (P15)



- 40 Battery Door (P11)
- 41 Battery Door Open/Close Lever (P11)
- 42 Tripod Receptacle



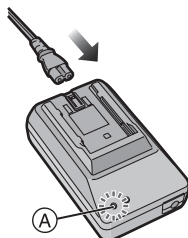
■ Battery Charger/AC Adaptor (P9, P13)

- 1 [AC IN] Terminal
- 2 Battery Attachment Part
- 3 [POWER] Indicator
- 4 [CHARGE] Indicator
- 5 [DC OUT] Terminal

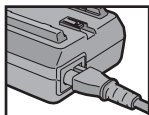
Charging the Battery

Charge the battery before using.

1 Connect the AC cable.

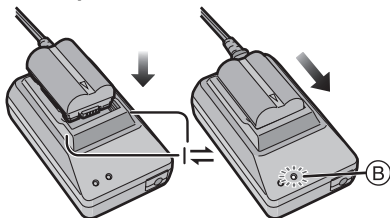


- The AC cable does not fit entirely into the AC input terminal. A gap will remain as shown below.



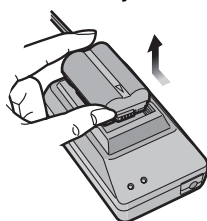
- The [POWER] indicator (A) lights.
- The battery cannot be charged when the DC cable is connected to the AC adaptor.

2 Attach the battery to the AC adaptor.



- Put the battery along the mark \Rightarrow horizontally and slide the battery.
- When the [CHARGE] Indicator (B) lights, charging starts.
- When the [CHARGE] indicator (B) turns off (in about 110 minutes), charging is finished.

3 Detach the battery.



◇ Suggestions/Tips ◇

- After use, be sure to disconnect the AC cable.
- The battery becomes warm after use/charge or during charge. The camera also becomes warm during use. However, it is not a malfunction.
- **The battery and AC adaptor are designed only for this camera. Do not use them with any other equipment.**
- **Do not disassemble or alter the AC adaptor.**
- The battery cannot be charged in the camera with the AC adaptor connected.

About the Battery

Battery indication

The remaining battery power appears on the screen.
(This does not appear when using AC adaptor)



(The indication turns red and blinks): Recharge or replace the battery.

Charging time and available recording time

Measured under the following conditions:

- Temperature: 25°C/Humidity: 60%
- Recording once every 30 seconds, flash every other record.
- Using the battery (supplied) and 16 MB SD Memory Card (supplied) [Picture size: 2560×1920/Quality: Fine (When deleting all pictures after full use)]

	Charging time	Continuous recording/playback time (recordable number)
Supplied battery	Approx. 110 min.	Recording with LCD monitor Approx. 180 min. (equal to 360 still pictures)
		Recording with Viewfinder Approx. 220 min. (equal to 440 still pictures)
		Playback with LCD monitor Approx. 340 min.

The recording time (recordable number) and playback time depend on the condition.

Charging environment and charging error

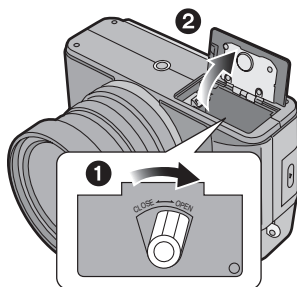
- Charge the battery under temperature of 10–35°C.
(The battery should also be the same temperature.)
- When charging starts, the [CHARGE] indicator lights.
If the charging error occurs, the [CHARGE] indicator blinks at about 1 second cycles.
In this case, disconnect the AC adaptor from the electrical outlet, remove the battery and ensure both room and battery temperature are not too low or high and then charge it again.
If the problem persists, consult the dealer or your nearest servicentre.
- When the operating time of the camera becomes extremely short even if the battery is properly charged, the life of the battery may be expired. Buy a new battery.
- The performance of the battery may be temporarily deteriorated and the operating time may become shorter under low temperature such as ski grounds.

Inserting the Battery

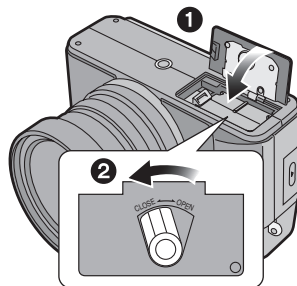
Preparation

- Check if the camera is turned off.
- Close the flash.

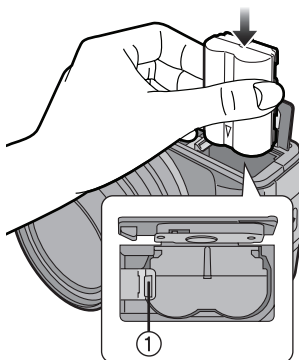
- 1 Slide the lever to open the battery door.



- 3 Close the battery door and then slide the battery door open/close lever.



- 2 Insert the battery fully until the lock ① pops on the battery.



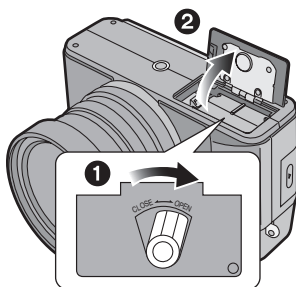
- Hold both sides of the battery when inserting.

Removing the Battery

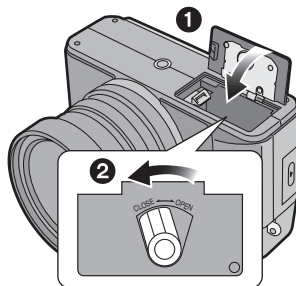
Preparation

- Check if the camera is turned off.
- Close the flash.

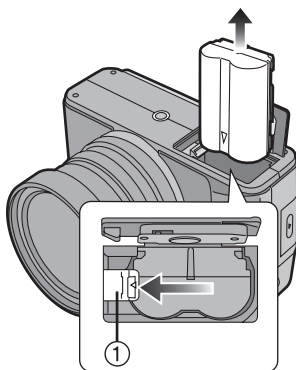
- 1 Slide the lever to open the battery door.



- 3 Close the battery door and then slide the battery door open/close lever.



- 2 Push the lock ① to remove the battery.



◇ Suggestions/Tips ◇

- If you will not use the camera for a long time, remove the battery.
- After the fully charged battery has been inserted for more than 24 hours, the clock setting is stored (in the camera) for max. 3 months after the battery was removed, in accordance with the elapsed time after the battery is inserted. (The time may be shorter if the battery is not charged sufficiently.) If more than 3 months has passed, the clock setting will be lost. In this case, set the clock again. (P20)
- **The supplied battery is designed only for this camera. Do not use it with any other equipment.**

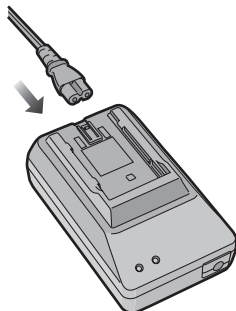
Using the AC Adaptor

You can use the camera without worrying about battery discharge by connecting to an AC adaptor.

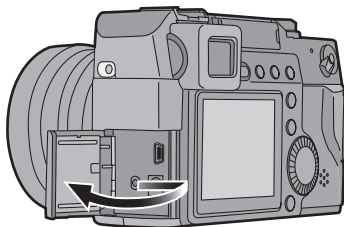
Preparation

- Check if the camera is turned off.
- Close the flash.

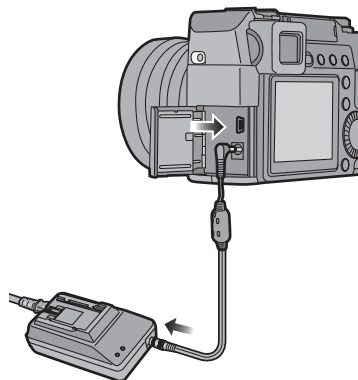
1 Connect the AC cable.



2 Slide the terminal door to open.



3 Connect the DC cable.



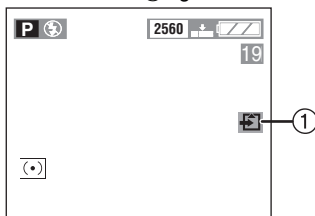
◇ Suggestions/Tips ◇

- Use the supplied DC cable.
If you use other DC cables, it may cause a malfunction.
- The camera becomes warm during use. This is not a malfunction.
- Disconnect the AC adaptor and DC cable when the camera is not in use.
- The battery cannot be charged in the camera even if the AC adaptor is connected.

About the Card

■ Access to the card

When the card is accessed, the card access indication ① lights.



When the card access indication ① lights, do not:

- turn the camera off.
- remove the battery or the card.
- disconnect the DC cable if you use the AC adaptor.

The card and the data may be damaged and the camera may not operate normally.

It is possible that pictures stored on the card can be damaged due to accidental erasure, static electricity, electrical noise or a defective card. We recommend storing precious data to your PC's hard drive. (P97)

■ SD Memory Card (supplied) and MultiMediaCard (optional)

The SD Memory Card and MultiMediaCard are small, lightweight, removable external memory cards. The reading/writing speed of an SD Memory Card is fast. The SD Memory Card is equipped with a Write-Protect switch ① that can inhibit writing and formatting a card. (When the switch is slid to the [LOCK] side, it is not possible to write or delete data on the card and format it. When the switch is unlocked, these functions become available.)

SD Memory Card



MultiMediaCard



◇ Suggestions/Tips ◇

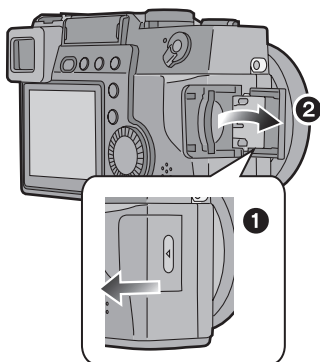
- The reading/writing speed of a MultiMediaCard is slower than an SD Memory Card. When a MultiMediaCard is used, the performance of certain features may be slightly slower than advertised.
- After recording motion images using the MultiMediaCard, the card access indication may appear for a while, but this is not a malfunction.
- Keep the Memory Card out of reach of children to prevent swallowing.

Inserting the Card

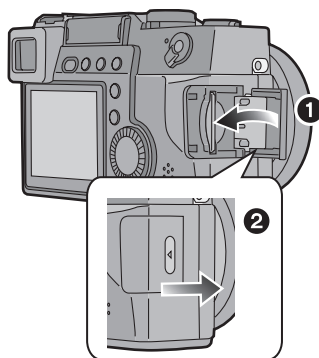
Preparation

- Check if the camera is turned off.
- Close the flash.

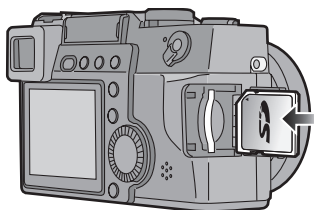
1 Slide the card door to open.



3 Close and slide the card door.



2 Insert the card with the label facing the rear of the camera until it clicks.



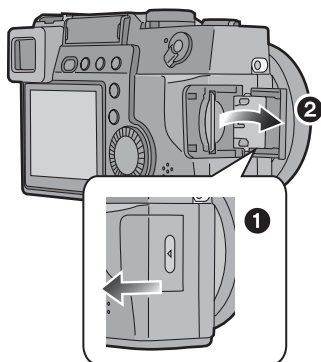
- Insert the card, pressing gently until it locks in place. If the card will not insert freely, it may be reversed. Do not force the card.
- Do not touch the connection terminals on the back side of the card.

Removing the Card

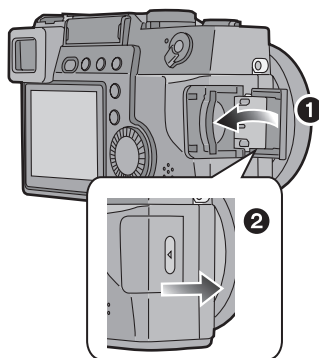
Preparation

- Check if the camera is turned off.
- Close the flash.

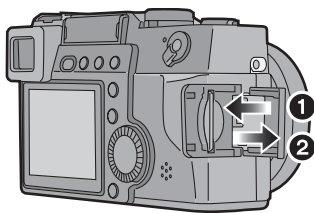
1 Slide the card door to open.



3 Close and slide the card door.



2 Push the card until it clicks then pull the card out upright.



◆ Suggestions/Tips ◆

- The card and the data may be damaged if it is removed while the camera is on.
- If the card cannot be completely closed, remove the card and insert it again.
- If the card cannot be fully inserted, check the direction of the card.
- We recommend using Panasonic's SD Memory Card. (Use only the genuine card.)
- The card may be damaged if it is not fully inserted.
- **Do not open the card door during the access to the card. (P14)**

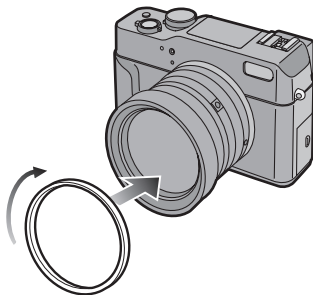
Attaching the MC Protector/Lens Cap/Lens Hood/Hood Cap

Preparation

- Check if the camera is turned off.
 - Close the flash.
-

■ Attaching the MC Protector

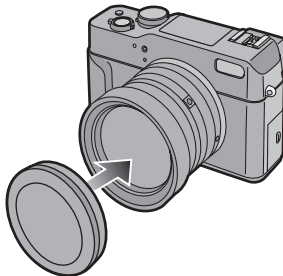
1 Attach the MC protector.



- The MC protector is a transparent filter which affects neither the colours nor the amount of light, so it can always be used to protect the camera's lens.
 - You can also attach the lens hood.
-

■ Attaching the lens cap

1 Attach the lens cap.

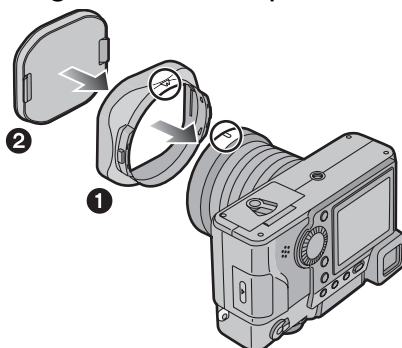


- When you turn the camera off, carry the camera or play back the pictures, attach the lens cap to protect the surface of the lens.
 - When using the MC protector, you can also attach the lens cap.
-

■ Attaching the lens hood/hood cap

1 ① Attach the lens hood.

2 ② Attach the hood cap.



- The camera is turned upside down in the figure above.
- In bright sunlight or when there is backlight, the lens hood will minimize lens flare and ghosting.
- The lens hood cuts off excess lighting and improves the picture quality.
- When using the MC protector, you can also attach the lens hood.
- When detaching the lens hood, refer to P110.

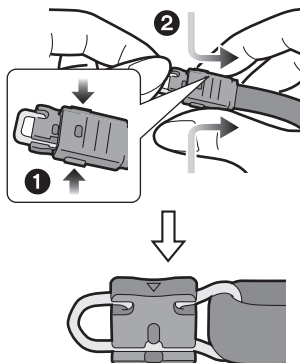
◇ Suggestions/Tips ◇

- If the MC protector is dropped, it may be damaged. Be careful not to drop it.
- Be careful not to lose the lens cap.
- You can also attach the ND filter (DMW-LND69; optional) by following the procedure for attaching the MC protector. The ND filter reduces the amount of light to approximately 1/8th (equal to adjusting the aperture value 3 increments) without affecting the colour balance.
- You cannot attach the MC protector and the ND filter at the same time.

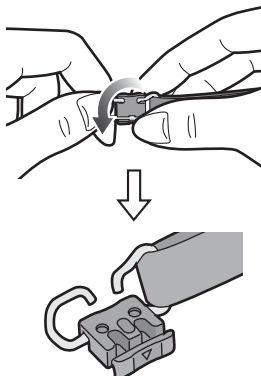
- When attaching the lens hood, use the dedicated hood cap. You cannot use the lens cap.
- When taking pictures with flash, photo flash is interrupted by the lens hood and the bottom of the screen becomes dark. (vignetting effect)
- When taking pictures with flash, we recommend detaching the lens hood.
- Consult the dealer or your nearest servicentre if you lose the supplied accessories. (You can purchase the accessories separately.)

Attaching the Strap

- 1 **Pressing both sides of the cover.**
- 2 **Pull out the black strap holder completely.**

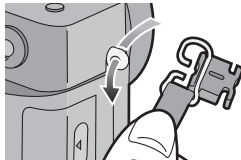


- 2 **Detach the black strap holder from the metal fitting.**

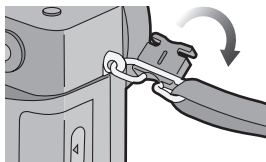


- When the black strap holder is completely detached, attach it again as above.

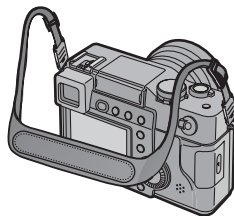
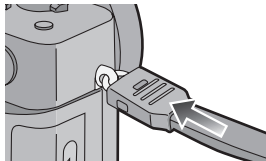
- 3 **Pass the metal fitting through the eyelet of the camera.**



- 4 **Rotate the black strap holder in the opposite direction until it clicks.**



- 5 **Slide the cover until it is attached firmly.**



- Attach the strap to the other side of the camera being careful not to twist it.
- Attach the strap so that you can see "LUMIX" logo.
- Check if the strap is firmly attached to the camera.

Setting the Date/Time (Clock Set)

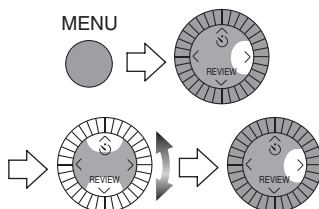
Initial Use

The clock is not set when the camera is shipped. When you turn the camera on, the clock setting screen appears.

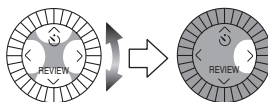
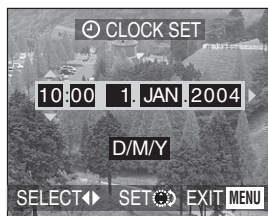


- When pressing the [MENU] button, the screen shown in step 2 appears. Set the clock on it.
- The above screen disappears in about 5 seconds. Start from step 1 to set the clock.

1 Select [CLOCK SET] from the [SETUP] menu. (P22)

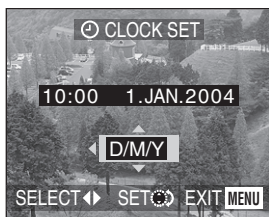


2 Set date and time.



- ◀/▶: Select the desired item.
- ▲/▼: Set date and time.

3 Select [D/M/Y], [M/D/Y] or [Y/M/D].



- Close the menu by pressing the [MENU] button 2 times after finishing the setting.

◇ Suggestions/Tips ◇

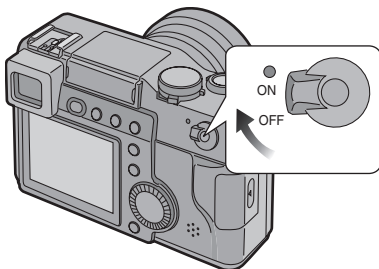
- You can set the year from 2000 to 2099. The 24-hour system is used.
- After the fully charged battery has been inserted for more than 24 hours, the clock setting is stored (in the camera) for max. 3 months after the battery was removed, in accordance with the elapsed time after the battery is inserted. (The time may be shorter if the battery is not charged sufficiently.) If more than 3 months has passed, the clock setting will be lost. In this case, set the clock again.

■ Date Printing

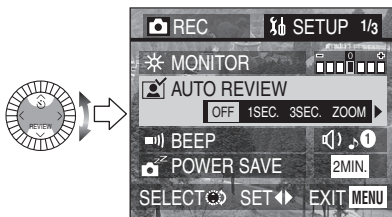
- You can set the date printing in DPOF print setting on this camera. (P83)
- Using the supplied software, [SD Viewer for DSC], it is possible to have the date imprinted on the picture. For details, please read the supplied operating instructions for PC connection.
- When you ask photo studios for printing, be sure to order the printing of the date. For further information, ask a photo studio. Depending on the store, it may not be printed.

Setup Menu

1 Turn the camera on.



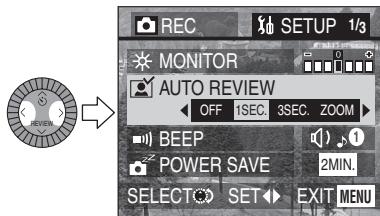
4 Select the desired item.



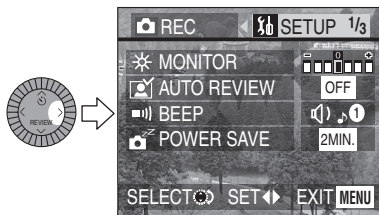
2 Press the [MENU] button.



5 Set the desired value.





3 Select the [SETUP] Menu.














- Close the menu by pressing the [MENU] button after finishing the setting.









You can control the following items on [SETUP] menu.

Menu	Functions
 MONITOR/ FINDER	Adjust the brightness of the LCD monitor (when pictures appear on the LCD monitor) or Viewfinder (when pictures appear on the Viewfinder) in 7 steps.
 AUTO REVIEW* ¹	<ul style="list-style-type: none"> • [OFF]: The recorded picture does not automatically appear. • [1SEC.]: The recorded picture automatically appears on the screen for about 1 second. • [3SEC.]: The recorded picture automatically appears on the screen for about 3 seconds. • [ZOOM]: The recorded picture automatically appears on the screen for about 1 second. Then it is enlarged 4 times and appears for about 1 second. Pictures in burst mode, auto bracket, pictures with audio and pictures with setting the quality to [RAW] are not enlarged even if [ZOOM] is selected. • In Motion image mode, auto review function is not activated. • When pictures are recorded in burst mode, with auto bracket or with setting the quality to [RAW], the auto review function works while the card is recorded regardless of the setting on the auto review function. (The picture is not enlarged.) • When using pictures with audio, the auto review function works while recording the audio or the data into the card regardless of the setting on the auto review function. (The picture is not enlarged.)

*¹Recording mode only

Menu	Functions
 BEEP	<p>You can set [BEEP] and [SHUTTER] in the recording mode, and [BEEP] in playback mode.</p> <ul style="list-style-type: none"> • Setting on [BEEP] (Setting on [BEEP] in recording mode) <ul style="list-style-type: none"> • []: The operational sound turns high. • []: The operational sound turns low. • []: The operational sound turns off. • Setting on the shutter sound <ul style="list-style-type: none"> • You can select the shutter sound from [, [] and []. • When the shutter speed is slower than 1/8, the shutter sound beeps both times when the shutter is opened and closed in recording.
 POWER SAVE	<ul style="list-style-type: none"> • [2MIN.]/[5MIN.]/[10MIN.]: The camera is automatically turned off if it has not been used for a predetermined amount of time. (Press the shutter button or turn the camera off and on to cancel the power save mode.) • [OFF]: The camera is not automatically turned off. • When using the AC adaptor/connecting to a PC/connecting to a printer/recording motion images/playing back motion images/during Slide Show, the power save mode is not activated.
 MF ASSIST* ¹	<p>In manual focus, assistance screen appears on the screen to facilitate focusing on the subject. (P40)</p>
 CUSTOM SET.* ¹	<p>Use this to set the menus which you want to include in the FUNCTION menu. (P60)</p>
 NO.RESET* ¹	<p>Set this when you want to start the file number of the next picture from 0001. (The folder number is renewed and the file number starts from 0001.)</p> <ul style="list-style-type: none"> • The folder number can be assigned from 100 to 999. When the folder number reaches to 999, it cannot be reset. We recommend formatting the card after saving the data on a PC or other.

*¹ Recording mode only

Menu	Functions
 CLOCK SET	Change the date and time. (P20)
 RESET* ¹	The camera is reset to the initial settings. However, the folder number and the clock settings are not changed.
 USB MODE	Set before connecting to a PC or a printer. (P95)
 LANGUAGE	<p>Set to the language on the menu screen from the following 7 languages. Set to the desired language with ◀/▶ and determine it with ▼/[REVIEW].</p> <ul style="list-style-type: none"> • [ENGLISH]: The menu screen in English • [DEUTSCH]: The menu screen in German • [FRANÇAIS]: The menu screen in French • [ESPAÑOL]: The menu screen in Spanish • [ITALIANO]: The menu screen in Italian • [中文]: The menu screen in Chinese (Simplified) • [日本語]: The menu screen in Japanese • When you set to other language by mistake, select [] from the menu icons to set the desired language.
 PLAY ON LCD* ²	When Viewfinder is selected in the recording mode, the picture automatically appears on the LCD monitor in review or playback. (P27)
 VOLUME* ²	<p>The volume of speakers can be adjusted in 7 steps.</p> <ul style="list-style-type: none"> • When you connect the camera to a TV, the volume of the speakers of the TV is not changed.
 VIDEO OUT* ²	<ul style="list-style-type: none"> • [NTSC]: Video output is set to NTSC system. • [PAL]: Video output is set to PAL system. (P94)

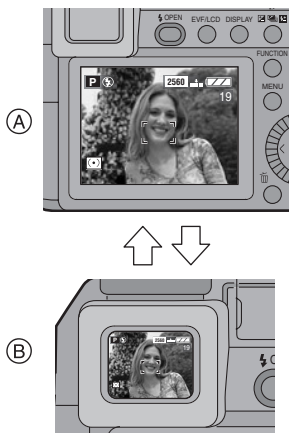
*¹ Recording mode only*² Playback mode only

Using the LCD Monitor/Viewfinder

The LCD monitor of the camera is easy to be viewed out of doors because the LCD monitor reflects sunlight to use it as a backlight.

Switching the screen to be turned on

Press the [EVF/LCD] button to switch to the screen you would like to turn on.



(A) LCD monitor (LCD)

(B) Viewfinder (EVF)

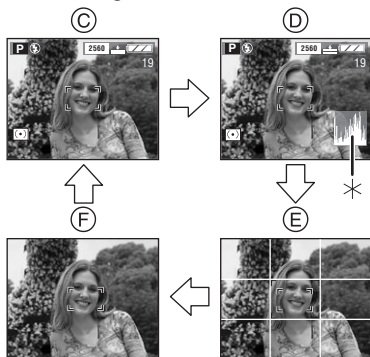
- When the LCD monitor turns on, the Viewfinder turns off. (and vice versa)

Selecting the screen to be used

Press the [DISPLAY] button to switch the screen to be used.

- When the menu screen appears, during multi playback or during playback zoom, the [DISPLAY] button is not activated.

In recording mode



(C) Display

(D) Display with histogram

(E) Nondisplay (Recording guide line)

(F) Nondisplay

*Histogram

In playback mode



(G) Display

(H) Display with recording information and histogram

(I) Nondisplay

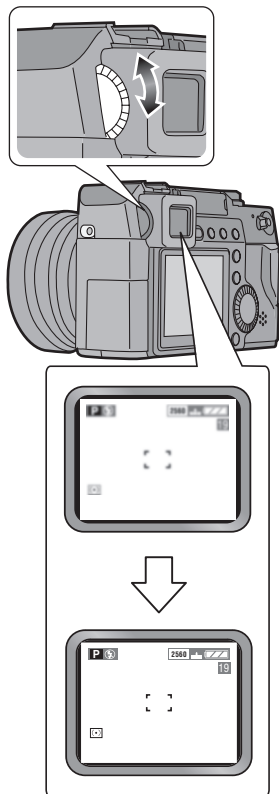
■ Diopter adjustment

This feature is useful for users who wear corrective lenses and prefer to use the Viewfinder.

Preparation

- Press the [EVF/LCD] button to display the Viewfinder.

1 Adjust the diopter, rotating the diopter adjustment dial.



■ Monitor priority

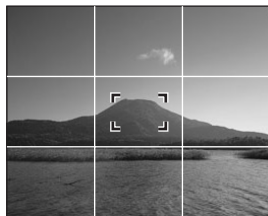
When setting [PLAY ON LCD] (P25) to [ON] on the [SETUP] menu, the LCD monitor is turned on in the following cases.

You can save the time to switch the display to the LCD monitor even when using the Viewfinder in recording.

- When the recording mode is switched to playback mode
- When reviewing pictures (P42)
- When turning the camera on in playback mode

■ Recording guide line

You can achieve balanced pictures by aligning the subject on the cross point of the horizontal and vertical guide lines. You can also take pictures easily by adjusting the horizon to the guide line.



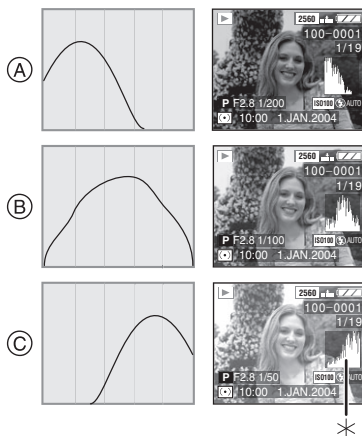
You can take pictures with well-designed composition by watching the size and the balance of subjects.

About the Exposure

- A histogram is a graph that displays brightness along the horizontal axis (black to white) and the number of pixels at each brightness level on the vertical axis.
- It allows the camera user to easily check the way a picture is being exposed.
- It is very useful if manual adjustments of the lens aperture and shutter speed are available, especially in those situations where automatic exposure may be difficult due to uneven lighting. Using the histogram feature will allow you to get the best performance from the camera.

- When the values are concentrated to the left as (A), the picture is under exposed.
- When the values in the histogram are distributed as (B), the exposure is adequate and the brightness is well-balanced.
- When the values are concentrated to the right as (C), the picture is over exposed.

Example of histogram



- (A) Under Exposed
(B) Properly Exposed
(C) Over Exposed

*Histogram

◇ Suggestions/Tips ◇

- **When the recorded picture and the histogram do not match each other under the following conditions, the histogram is displayed in yellow.**

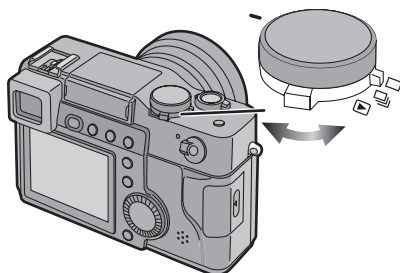
– When the flash is activated

– When the flash is closed


- When the brightness of the screen is not correctly displayed in dark places
- When the exposure is not adequately adjusted in dark places
- The histogram does not appear when in Motion image mode, during multi playback and playback zoom.
- The histogram in recording and playback may not match each other.
- The histogram in this camera does not match the one displayed in image editing software on PC, etc.
- The histogram in the recording mode is an approximation.


Operational Mode Dial and Metering Mode Dial

Operational mode dial



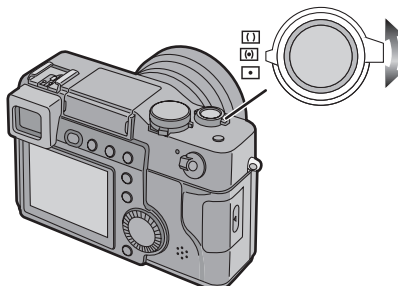
You can switch to the recording mode (single/burst) and the playback mode.

 : Single mode (P34)




 : Burst mode (P50)

 : Playback mode (P51)

Metering mode dial

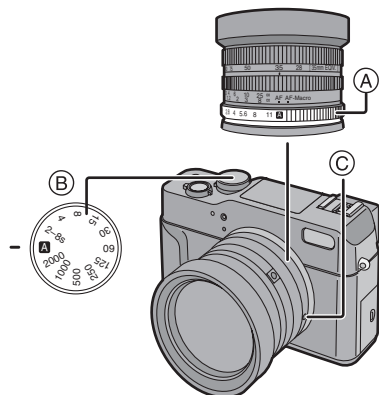


You can switch to the following metering methods.

Metering mode	Details of setting
 Multiple	The camera automatically evaluates the whole screen and optimizes the exposure. Usually, we recommend using this metering mode.
 Centre weighted	This evenly evaluates the whole of the screen pointing to the subject on the centre of the screen.
 Spot	This evaluates the subject on the spot metering target.

Setting the Exposure

You can set the exposure by setting the aperture ring and the shutter speed dial.



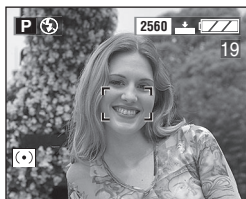
- (A): the aperture ring
- (B): the shutter speed dial
- (C): the aperture ring button

- When adjusting the aperture ring to [A] or changing the position from [A] to other, rotate the aperture ring with pressing the aperture ring button (C).

Programme AE mode [P]

The exposure is automatically set by the camera.

Adjust the aperture ring and the shutter speed dial to [A].



Aperture-priority AE mode [A]

When you want the background to be in sharp focus, set the aperture value to a higher number. The higher the aperture value, the smaller the aperture opening will be. For a soft focus background, set the aperture number to a lower number which corresponds to a larger aperture opening.

The shutter speed is changed according to the aperture value.

Adjust the aperture ring between 2 and 11, and the shutter speed dial to [A].



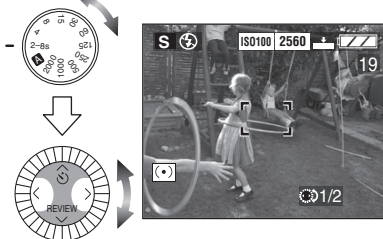
Shutter-priority AE mode [S]

When you want to take a sharp picture of a fast moving subject, set to faster shutter speed. When you want to create a trail effect, set to slower shutter speed. The aperture value is changed according to the shutter speed.

Adjust the aperture ring to [A] and the shutter speed dial between 2000 and 2–8s.



- When adjusting the shutter speed dial to [2–8s], rotate the command dial or set the shutter speed with



◆ Suggestions/Tips ◆

■ Aperture-priority AE mode [A] and Shutter-priority AE mode [S]

- Refer to P33 for the available range of the aperture value and the shutter speed.
- The focus range is 60 cm–∞ (AF). It is 30 cm–∞ (AF-Macro/MF).
- The brightness of the screen may differ from that of recorded pictures. Check the pictures with the review function or the playback mode.
- The ISO sensitivity cannot be set to [AUTO].
- If the subject is too bright, set to larger aperture value, if too dim, set to smaller aperture value in the aperture-priority AE mode.
- You cannot set Slow sync. [⚡S] and Slow sync./Red-eye reduction [⚡S👁] (P44) on built-in flash in the shutter-priority AE mode.
- When the shutter speed is slow in shutter-priority AE mode, we recommend using a tripod.

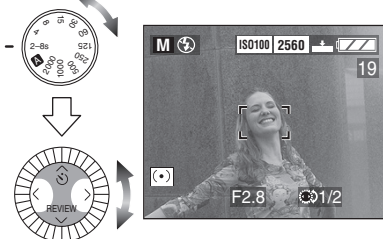
■ Manual exposure mode [M]

Decide the exposure by setting the aperture value and the shutter speed manually.

Adjust the aperture ring between 2 and 11, and the shutter speed dial between 2000 and 2–8s.






- When adjusting the shutter speed dial to [2–8s], rotate the command dial or set the shutter speed with



Manual Exposure Assistance

When you press the shutter button halfway, the indication for the condition of exposure (manual exposure assistance) appears for about 10 seconds.

	The exposure is adequate.
	Set to faster shutter speed or larger aperture value.
	Set to slower shutter speed or smaller aperture value.





- When the exposure is not adequate, set the aperture value and the shutter speed again.

Exposure

- If the exposure is not adequate, the aperture value and the shutter speed turn red when pressing the shutter button halfway. (However, the aperture value and the shutter speed do not turn red when the flash is activated or manual exposure mode is set.)
- The brightness of the screen may differ from that of recorded pictures. In particular, when taking pictures in dark places with slow shutter, the subject looks dark on the screen, but the actual picture is bright.
- When most of the subjects in the screen are bright (e.g. blue sky on a clear day, snowy field, etc.), the captured pictures may become dark. In this case, compensate the exposure. (P47)

◇ Suggestions/Tips ◇

Manual exposure mode [M]

- Refer to P33 for the available range of the aperture value and the shutter speed.
- The focus range is 60 cm–∞ (AF), 30 cm–∞ (AF-Macro/MF).
- You cannot set the following items in manual exposure mode.
 - AUTO [], AUTO/Red-eye reduction [], Slow sync. [], Slow sync./Red-eye reduction [] on built-in flash (P44)
 - [AUTO] of ISO sensitivity (P68)
 - Exposure compensation (P47)
- The manual exposure assistance is an approximation. We recommend taking pictures and then checking them using the review function.

Shutter Speed and Aperture Value

■ Shutter-priority AE mode

Available Shutter Speed (Sec.) (Per 1/3 EV)				Aperture value
8	4	2	1	F2.0* ¹ –F11
1/2	1/4	1/8	1/15	F2.0–F11
1/30	1/60	1/125	1/250	
1/500	1/1000	1/2000		

*¹The smaller aperture value is limited depending on the shutter speed or ISO sensitivity.

■ Aperture-priority AE mode

Available Aperture value (Per 1/3 EV)				Shutter Speed (Sec.)
F11	F10	F9.0	F8.0	2 – 1/4000
F7.1	F6.3	F5.6	F5.0	
F4.5				
F4.0		F3.6		2 – 1/3200
F3.2				2 – 1/2600
F2.8	F2.5	F2.2	F2.0	2 – 1/2000

■ Manual exposure mode

Available Aperture value (Per 1/3 EV)				Available Shutter Speed (Sec.) (Per 1/3 EV)			
F11	F10	F9.0	F8.0	8	4	2	1
F7.1	F6.3	F5.6	F5.0	1/2	1/4	1/8	1/15
F4.5	F4.0	F3.6	F3.2	1/30	1/60	1/125	1/250
F2.8	F2.5	F2.2	F2.0	1/500	1/1000	1/2000	

◇ Suggestions/Tips ◇

■ In aperture-priority AE mode and manual exposure mode

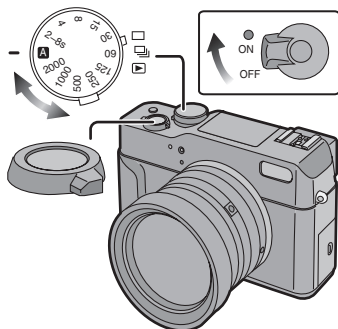
- The aperture value can be set from F2.4 to F11 in Tele.
- The lower limit of the aperture range can be changed between F2.0 and F2.4 depending on the zoom position.

Taking Pictures with Auto Focus

Preparation

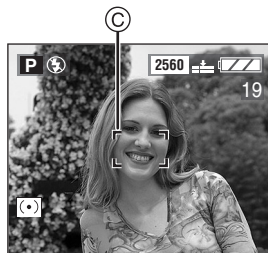
- Insert the charged battery (P11) or connect the AC adaptor (P13).
- Insert the card. (P15)
- Remove the lens cap.

- 1 **Turn the camera on.**
- 2 **Set the operational mode dial to single mode [□]. (P29)**
- 3 **Set to the exposure. (P30–P32)**



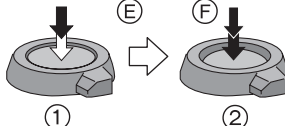
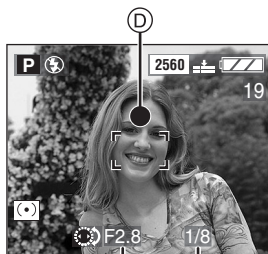
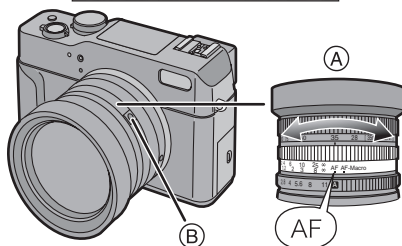
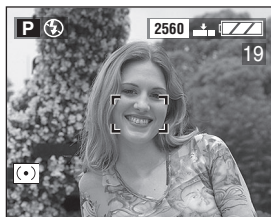
- When adjusting the focus ring (A) to [AF], rotate the focus ring with pressing the focus ring button (B).

- 3 **Aim the AF area (C) to the point you want to focus.**



- 4 **Focus on the subject to take the picture.**

- 2 **Rotate the focus ring (A) to [AF].**



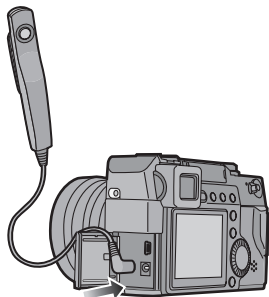
- ①: Press the shutter button halfway to focus.
- ②: Press the shutter button fully to take the picture.

- The focus indication (D) lights and then the aperture value (E) and the shutter speed (F) appear.
- When the focus indication (D) is blinking, the subject is not focused. Press the shutter button halfway and focus on the subject again.

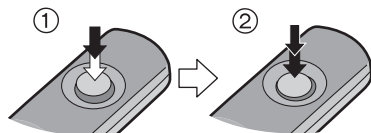
■ Using the remote shutter

The remote shutter works similar to the shutter button on the camera. You can avoid the jitter (camera shake) with it when using a tripod. The power save cannot be cancelled.

1 Connect the remote shutter to the [AV OUT/REMOTE] terminal on the camera firmly.



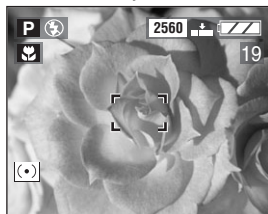
2 Focus on the subject and take a picture.



- ①: Press the shutter button halfway to focus.
- ②: Press the shutter button fully to take the picture.

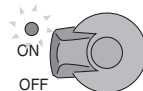
■ Taking pictures close to the subject (AF-Macro)

When adjusting the focus ring to [AF-Macro], you can take pictures approaching the lens at a distance up to 30 cm from the subject.



- When setting to [AF-Macro], we recommend using a tripod.
- The available flash range is about 50 cm to 4.8 m. (When setting to ISO AUTO) (P45)

■ Power indicator



Lighting:

- When turning the camera on

Blinking:

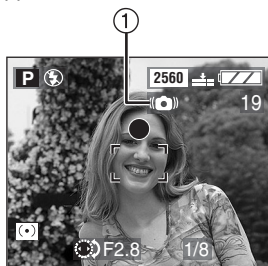
- When the card door is open
- When the card is not inserted
- When there is no remaining capacity on the card
- When the card is locked in the recording mode
- When the remaining battery power is low (blinking slowly)

■ Focusing

- The focus range is 60 cm–∞ (AF). It is 30 cm–∞ (AF-Macro/MF).
- If you press the shutter button fully without prefocusing, pictures may be blurry or unfocused.
- When the focus indication is blinking, the subject is not focused. Press the shutter button halfway and focus on the subject again.
- When the subject is focused, the camera beeps 2 times. If not, it beeps 4 times.
- If the camera will not focus after a few tries, turn it off and on and try again.
- Refer to P24 if you want to turn the operational sound off.
- In the following cases, you cannot focus on the subject with auto focus adequately.
 - When including both near and distant subjects in a scene
 - When there is a dirt on the glass between the lens and the subject
 - When there are illuminated or glittering objects around the subject
 - When taking a picture in a dark place
 - When the subject moves fast
 - When the scene is poor in contrast
 - When jitter occurs
 - When recording a very bright subject
- We recommend taking pictures using manual focus (P40) or AF/AE lock (P38).
- Even if the focus indication appears and the subject is focused, it is cancelled when you press the shutter button. Press the shutter button halfway again.

■ Jitter (Camera shake)

- When jitter could occur, the jitter alert ① appears.



- When the jitter alert appears, we recommend using a tripod. If you cannot use a tripod, be careful of how you hold the camera. (P37)
- Be careful of jittering when pressing the shutter button.

■ Care for the camera



- Check to make sure there is no stain or dirt on the lens.
- Do not touch the lens directly.
- Do not cause impact to the lens.
- Take care not to touch or stain the surface of the lens. When the lens becomes dirty or dust attaches to the lens, use a commercial blower brush to remove dust or dirt and wipe the lens with a dry, soft cloth. If you use solvents such as benzine, alcohol or thinner, the camera may be discoloured or broken.
- When using the camera in a sandy or dusty place, be careful not to let dirt, grit or seawater come into the camera.

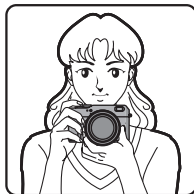
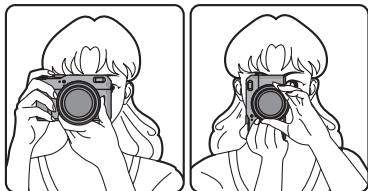
◇ **Suggestions/Tips** ◇

- When pressing the shutter button halfway, the screen may become dark or bright for a moment; this is not a malfunction. This is caused by adjusting the aperture value.
- When you slow the shutter speed, the shutter may be kept closed after recording due to the signal conditioning. This is not a malfunction.
- We recommend setting the clock again before taking pictures. (P20)
- When the time for power save is set (P24), the camera is automatically turned off if you do not operate within the set time. When operating the camera again, press the shutter button or turn the camera off and on.

■ **Posture to take good pictures**

To take pictures without blurring:

- Hold the camera gently with your both hands, keep arms stationary at your side and stand with your feet slightly apart.
- Check that the camera is not shaken when pressing the shutter button halfway.
- After pressing the shutter button, keep the camera stationary until the picture appears on the screen.
- In the following cases, keep the camera stationary for a long time.
 - In Slow sync. [] or Slow sync./Red-eye reduction [] (P44)
 - When you set the shutter speed slower (P30, P31)

When recording with LCD Monitor**When recording with Viewfinder****Position of feet**

- Hold the camera firmly with your right hand.
- Fix your left hand by attaching your hand to the lens ring.
- Do not cover the AF Sensor, the white balance sensor or the microphone with your finger.

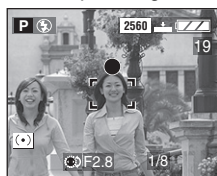
■ AF/AE Lock (AF: Auto Focus/ AE: Auto Exposure)



When recording a picture of people with a composition as the above picture, you cannot focus on the subject because it is out of AF area in usual operation.

In this case,

1. Aim the AF area to the subject.
 2. Press the shutter button halfway to fix the focus and the exposure.
 - When the subject is focused, the focus indication lights.
 3. Keeping pressing the shutter button halfway, move the camera as you want to compose the picture.
 4. Press the shutter button fully.
- You can repeatedly retry AF/AE lock before pressing the shutter button.

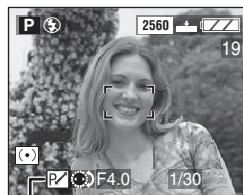
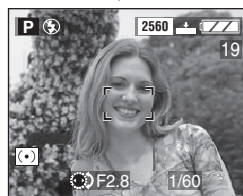


■ Programme shift

In Programme AE mode, you can change the preset aperture value and the shutter speed under the same exposure. This is called Programme shift.

By this function, you can make the background more blurred (by decreasing the aperture value) or record the subject in motion dynamically (by setting to slow shutter speed) in Programme AE mode.

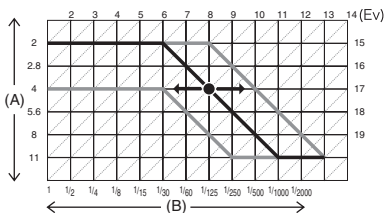
- Press the shutter button halfway and then rotate the command dial or press ◀▶ to shift the programme while the aperture value and the shutter speed are displayed on the screen (for 10 seconds).



①



- When the Programme shift is activated, the Programme shift indication ① appears on the screen.



(A): Aperture value

(B): Shutter speed

◇ **Suggestions/Tips** ◇

- If the exposure is not adequate when pressing the shutter button halfway, the shutter speed turns red.
- When 10 or more seconds have passed after the Programme shift becomes effective, the status to activate the Programme shift is cancelled and returned to the Programme AE mode. However, the setting on the Programme shift is memorised.
- Programme shift is cancelled when turning the camera off.
- The Programme shift may not be activated depending on the brightness of the subject.

Taking Pictures with Manual Focus

Use this function when you want to fix the focus or when the distance between the lens and the subject is determined and you do not want to activate the auto focus.

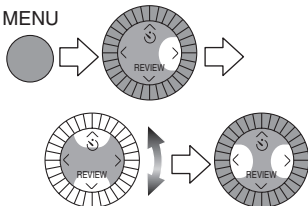
Preparation

- Set the operational mode dial except for [P] (P29)

- Select [MF ASSIST] from the [SETUP] menu (in the recording mode) (P22) and then set it to [MF1] or [MF2].



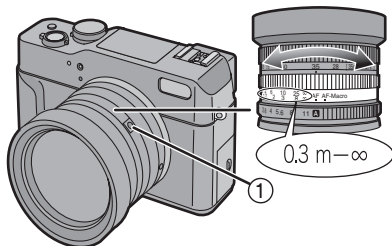
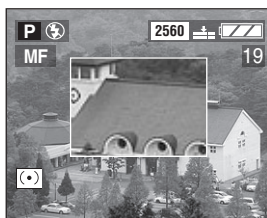
MENU



- Close the menu by pressing the [MENU] button after finishing the setting.

- Rotate the focus ring to focus on the subject.

- When rotating it from [AF], rotate it while pressing the focus ring button ①.



- The values on the focus ring (0.3 m–∞) are approximations of the range of distance from the lens to focus on the subject adequately.

MF ASSIST

When you rotate the focus ring with setting [MF ASSIST] to [MF1] or [MF2], the MF assistance is activated and the screen is enlarged. It allows you to focus on the subject more easily.

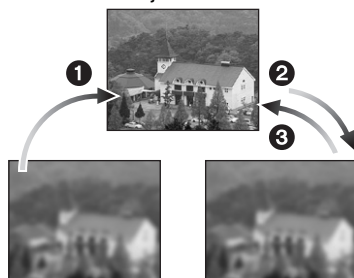
- [MF1]: The centre of the screen is enlarged. You can adjust the focus while determining composition of the whole of the screen.
- [MF2]: The whole of the screen is enlarged. It is convenient for adjusting the focus in Wide.
- [OFF]: The screen is not enlarged.
- The MF assistance disappears in the following conditions.
 - When 2 seconds passed after you stop rotating the focus ring
 - When pressing the shutter button halfway

◇ Suggestions/Tips ◇

- You can also record with manual focus in Motion image mode. When starting the recording, the focus is fixed.
- When you focus on the subject in Wide, the focus may not be adequate in Tele. In this case, focus on the subject again.
- The focus range is 30 cm–∞.

Technique for Manual focus

The subject is focused.



The subject is unfocused.

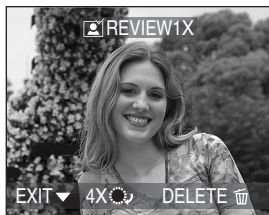
- 1 Rotate the focus ring.
- 2 Rotate it little more.
- 3 Finely focus on the subject with rotating the focus ring reversely.

Checking the Recorded Picture (Review)

Preparation

- In Motion image mode, review function is not activated.

1 Press \blacktriangledown /[REVIEW].



- The last recorded picture appears for about 10 seconds.
- Press the shutter button halfway or \blacktriangledown /[REVIEW] to cancel the review.
- You can check the previous or following picture with \blacktriangleleft / \blacktriangleright .
- When the recorded pictures are too bright or dim, compensate the exposure. (P47)

2 Enlarge and shift the picture.



(A)



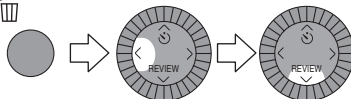
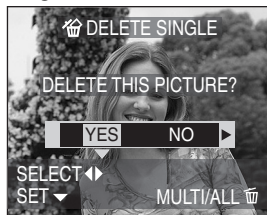
(B)



(C)

- (A): 1x \rightarrow 4x \rightarrow 8x
- (B): 8x \rightarrow 4x \rightarrow 1x
- (C): It moves the position.

Deleting the recorded picture during the review



- Once deleted, pictures cannot be recovered.
- Multi pictures or all pictures can be deleted. Read P56 or P57 to operate them.

Using the Optical Zoom

You can bring people or objects into close-up or record landscapes widely in the range of optical zoom up to 3.2× (35 mm-camera equivalent: 28–90 mm) by rotating the zoom ring.

Preparation

- Set the operational mode dial except for [P]. (P29)

1× (28 mm)



3.2× (90 mm)



- To make subjects appear further away (Wide)



- To make subjects appear closer (Tele)



◇ Suggestions/Tips ◇

- The picture may be slightly distorted according to the lens. The distortion will increase as you make subjects wider and closer.
- When using the zoom lens at high magnification, the quality of the picture can be enhanced if a tripod is used. At high magnification, even small movements can cause a slight decrease in picture sharpness.
- You can zoom in or zoom out the subject with setting the AF/AE lock by rotating the zoom ring.

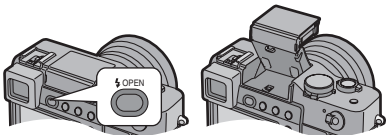
Taking Pictures using the Built-in Flash

Preparation

- Set the operational mode dial except for [▶]. (P29)

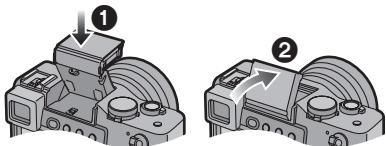
To open the flash

Press the [⚡ OPEN] button.



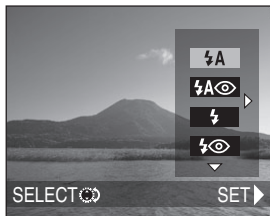
To close the flash

Press the flash until it clicks.



- Be sure to close the flash when not in use.

Switching the flash setting



⚡A : AUTO

The flash is automatically activated according to the recording condition.

⚡A with eye icon : AUTO/Red-eye reduction

The flash is automatically activated according to the recording condition. It reduces the red-eye phenomenon (eyes of the subject appear red in photo flash) by lighting the flash

before the actual recording of the picture.

Use this when you take pictures of people in low lighting conditions.

⚡ : Forced ON

The flash is activated every time a picture is recorded forcibly.

Use this when your subject is back-lit or under fluorescent light.

⚡ with eye icon : Forced ON/Red-eye reduction

The flash is activated every time a picture is recorded forcibly.

Simultaneously it reduces the red-eye phenomenon. Use this when your subject is back-lit or under fluorescent light.

⚡S : Slow sync.

When you take a picture with a dark background landscape, it makes the shutter speed slow when the flash is activated, so that the dark background landscape will become bright.

⚡S with eye icon : Slow sync./Red-eye reduction

When you take a picture with a dark background landscape, it makes the shutter speed slow when the flash is activated, so that the dark background landscape will become bright. Simultaneously it reduces the red-eye phenomenon.

Use this when taking pictures of people with the dark background.

⚡ with a circle and slash icon : Forced OFF

Even in dark places, the flash is not activated.

Use this when taking pictures in places where use of the flash is not allowed.

- Refer to P71 for setting the 1st and 2nd curtain.

Available flash settings

	P	A	S	M
	○	○	○	—
	○*	○*	○*	—
	○	○	○	○
	○*	○*	○*	○*
	○	○	—	—
	○*	○*	—	—
	○	○	○	○

*When setting to the 2nd Curtain Synchro, flash setting is not available.

The available flash range to take pictures

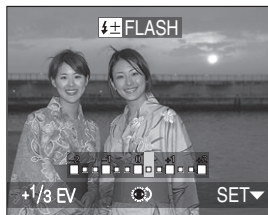
ISO sensitivity	Available flash range
ISO AUTO	50 cm – 4.8 m (Wide)
	50 cm – 4 m (Tele)
ISO100	50 cm – 4.8 m (Wide)
	50 cm – 4 m (Tele)
ISO200	70 cm – 6.7 m (Wide)
	70 cm – 5.6 m (Tele)
ISO400	1 m – 9.5 m (Wide)
	1 m – 8 m (Tele)

- Refer to P36 for the focus range.

Adjusting flash output

Adjust the flash output when the subject is small or reflection ratio is extremely high or low.

- Press until FLASH appears on the screen to set the flash output.



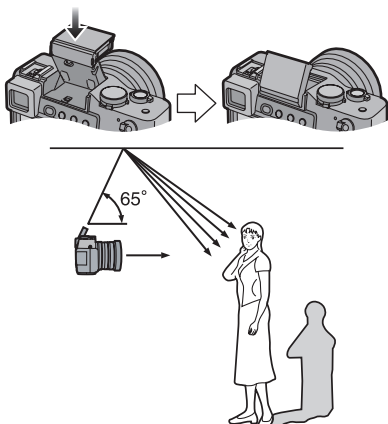
- You can adjust this from -2 EV to $+2$ EV in steps of $1/3$ EV.
- The determined flash output is memorised even if the camera is turned off.

Bounce Flash

Bounce flash is a technique to take pictures with reflecting the light to a ceiling or a wall.

When you directly illuminate the front of the subject, dark shadows may appear on the subject or the skin colour in the subject may be turned white. In this case, you can defuse the shadows and take pictures naturally by bounce flash.

You can fix the flash slanting at an angle of about 65° as follows in bounce flash. (Bounce flash lock)



Aim the flash to the ceiling and take the picture.

- We recommend setting the white balance to [AUTO] (P61).

◆ Suggestions/Tips ◆

- In Motion image mode or when the flash is closed, flash setting is fixed to the Forced OFF [].
- **Do not stare at the photo flash from close proximity when using the flash.**
- **If you bring the flash too close to the subjects, they may be distorted or discoloured by its heat and lighting.**
- **Do not cover the photo flash with your fingers or any other items.**
- When you take pictures out of the range of the flash control, the picture may be over exposed.
- When the jitter alert appears, we recommend using the flash.
- When you set to burst mode or auto bracket, only 1 picture is recorded for every flash activated.
- The flash icon turns red when activating the flash and pressing the shutter button halfway.
- When the flash is being charged, the flash icon blinks red, and you cannot take a picture even when you press the shutter button fully.
- **When taking a picture with the flash, we recommend removing the lens hood. In some cases it may not allow the scene to be illuminated properly.**
- When taking a picture with the flash, the white balance will be automatically adjusted [except for [] (Daylight) and [] (Flash)] (P61), but the white balance may not be properly adjusted when the photo flash is insufficient.
- When the shutter speed is fast, the flash effect may not be sufficient.
- To avoid noises, we recommend setting each item on [PICT.ADJ.] to [LOW]. (P72)
- Refer to P68 for the ISO sensitivity.
- Refer to P105 for the external flash.
- In the bounce flash
 - Select the whitish ceiling with high reflection ratio. If not, the colour or the pattern may be reflected to the picture.
 - The available flash range becomes shorter than usual.
 - When you select too high ceiling, the reflected light may not reach to the subject.
 - Using the flash for bounce flash on the position other than specified may cause a malfunction.
- When you repeat taking pictures using the flash, recording may be impossible if the flash is activated. Try recording after the card access indicator turns off.

Compensating the Exposure

Use this function when you cannot achieve appropriate exposure due to the difference of brightness between the subject and the background.

Preparation

- Set the operational mode dial except for [P] (P29)

- Press [Z] [M] [F] until [EXPOSURE] appears on the screen to compensate the exposure.



- You can compensate from -2 EV to $+2$ EV in steps of $1/3$ EV.

◇ Suggestions/Tips ◇

- EV is an abbreviation of Exposure Value, and it is the amount of light given to the CCD by the aperture value and the shutter speed.
- The compensation range of the exposure will be limited depending on the brightness of the subject.
- The exposure compensation value appears on the lower left of the screen.
- The exposure value is memorised even if the camera is turned off.
- You cannot compensate the exposure in manual exposure.

Taking Pictures using Auto Bracket

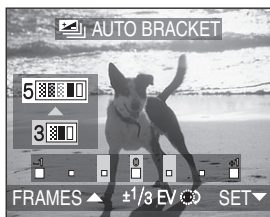
This mode allows you to take pictures automatically according to the compensation range of the exposure by pressing the shutter button only once.

You can select the picture with the desired exposure among different exposures.

Preparation

- Set the operational mode dial except for [P]. (P29)

- Press [Z] [Z] [Z] until [Z] **AUTO BRACKET** appears on the screen to set the compensation range of the exposure.



- You can select the auto bracket from 0 (OFF), $\pm 1/3$ EV, $\pm 2/3$ EV and ± 1 EV.
- You can set the number of recording to 3 or 5 by pressing ▲.

◇ Suggestions/Tips ◇

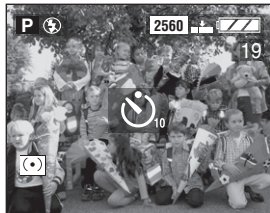
- The auto bracket icon appears on the lower left of the screen.
- When taking pictures using auto bracket after the exposure compensation, the pictures are based on the compensated exposure. When the exposure is compensated, the compensated exposure value appears on the lower left of the screen.
- When the flash is activated, you can take only 1 picture. Auto bracket setting cannot be cancelled.
- When setting auto bracket, you cannot take a picture with audio.
- When setting auto bracket and the burst mode simultaneously, auto bracket will be performed.
- The exposure may not be compensated with auto bracket depending on the brightness of the subject.
- When setting the quality to [RAW], you cannot take pictures with the auto bracket.
- You cannot set the number of recording to 5 when the picture size is set to 2560×1920 pixels and the quality is set to [SFI] (Super Fine).

Taking Pictures with the Self-timer

Preparation

- Set the operational mode dial except for [P]. (P29)

1 Switch the self-timer setting.



: Self-timer set to 10 seconds

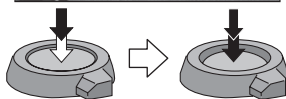


: Self-timer set to 2 seconds



No display (cancelled)

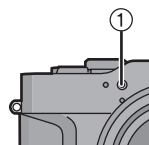
2 Focus on the subject to take the picture.



- If you press the [MENU] button when the self-timer is set, the self-timer setting is cancelled.

◇ Suggestions/Tips ◇

- When using a tripod or other cases, setting the self-timer to 2 seconds is convenient to stabilize the jitter caused by pressing the shutter button.
- The self-timer indicator ① blinks and the shutter is activated after 10 seconds (or 2 seconds).
- When pressing the button fully at a stroke, the subject is automatically focused after the self-timer indicator turns off. (When setting the manual focus, the focus is fixed.)
- When setting the self-timer in the burst mode, you can take only 1 picture.
- We recommend using a tripod when setting the self-timer.

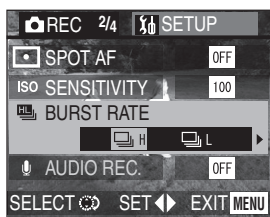


Taking Pictures using Burst Mode

Preparation

- Set the operational mode dial to burst mode []. (P29)

- Select [BURST RATE], set [] or [] and then take pictures.



- Keep pressing the shutter button fully to activate the burst mode.
- Close the menu by pressing the [MENU] button after finishing the setting.

◆ Suggestions/Tips ◆

■ Burst speed

Burst speed	2.7 frames/second	1 frame/second

■ Number of pictures recorded in burst mode

Picture size			
2560	max. 3 frames	max. 5 frames	max. 9 frames
2048	max. 5 frames	max. 8 frames	max. 15 frames
1600	max. 8 frames	max. 15 frames	max. 28 frames

1280	max. 12 frames	max. 23 frames	max. 44 frames
640	max. 44 frames	max. 80 frames	max. 137 frames
HDTV	max. 8 frames	max. 14 frames	max. 27 frames

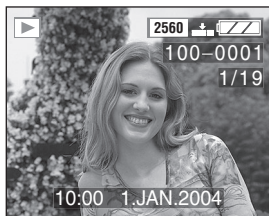
- When the flash is not activated, it is possible to record 2.7 frames in 1 second in the burst mode at a shutter speed higher than 1/60th.
- If the flash is activated, you can record only 1 frame.
- You cannot take pictures with audio in the burst mode.
- When setting auto bracket and the burst mode simultaneously, auto bracket will be performed.
- Burst mode will not perform as described if a MultiMediaCard is used in place of an SD Memory Card. The reading/writing speed of a MultiMediaCard is slower than that of an SD Memory Card.
- When setting the quality to [RAW], you cannot take pictures in the burst mode.
- When you slow the shutter speed, the shutter may be kept closed after recording due to the signal conditioning. This is not a malfunction. The burst interval also becomes longer and the limit on the burst frames is released.**
- The number of remaining frames may not correspond with recorded frames.
- If you rotate the zoom ring while taking pictures in the burst mode, recorded pictures may not be correctly focused on the subject.

Playing Back Pictures

Preparation

- Set the operational mode dial to playback mode [▶]. (P29)

1 Select the picture.



- Press ◀ to play back the previous picture.
- Press ▶ to play back the next picture.
- The picture following the last one is the first picture.

- When releasing ◀/▶, the number of file forwarded begins from 1.
- While forwarding or rewinding a large number of pictures by holding down ◀/▶, once release ◀/▶ before reaching the picture to be played back, then press ◀/▶ to forward/rewind pictures until the desired picture appears.
- In review playback in the recording mode or multi playback, the picture can only be forwarded or rewound one by one.

Fast forwarding/Fast rewinding

When you keep pressing ◀/▶ during playback, the file number and the page number are updated. If you release ◀/▶ when the number of the desired picture appears, you can play back the picture.

▶: Fast forward

◀: Fast rewind

- The number of files forwarded/rewound at a time depends on how long you hold down ◀/▶.
- The longer you hold down ◀/▶, the more pictures you can forward/rewind at a time.
- The setting of the number of files forwarded/rewound at a time varies depending on the total number of the recorded pictures.

◇ **Suggestions/Tips** ◇

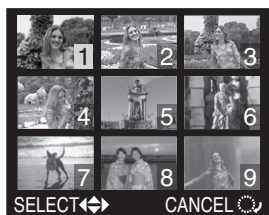
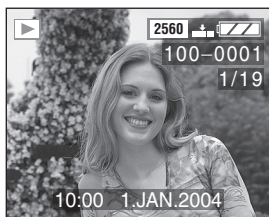
- This camera is based on the DCF standards (Design rule for Camera File system) which were established by the Japan Electronics and Information Technology Industries Association (JEITA).
- When changing the folder name or file name on PC, the pictures may not be played back.
- The file format that can be played back with this camera is JPEG. (There are also pictures that cannot be played back in JPEG format.)
- When playing back pictures that have been recorded with other equipment, the picture quality may be deteriorated and pictures may not be played back.
- When playing back a file out of standard, the folder/file number is indicated by [—] and the screen may turn black.
- The interference fringe may appear on the screen depending on the subject. This is called moire. This is not a malfunction.

9 Pictures Multi Playback

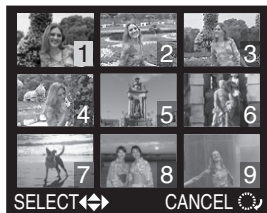
Preparation

- Set the operational mode dial to playback mode [▶]. (P29)

1 Switch to multi screen.



2 Select the pictures.



■ To return to the normal indication

Rotate the command dial clockwise.



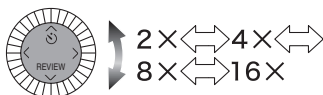
- The picture with the number coloured in yellow appears.

Using the Playback Zoom

Preparation

- Set the operational mode dial to playback mode [▶]. (P29)

1 Enlarge the picture.



To delete a picture during the playback zoom

Press the [🗑️] button.

When the confirmation screen appears, press ◀ to select [YES], and press ▼/[REVIEW]. (P55)

◇ Suggestions/Tips ◇

- The more the picture is enlarged, the more its quality deteriorates.
- The playback zoom may not operate if pictures have been recorded with other equipment.

2 Shift the picture.



Deleting Pictures

Preparation

- Set the operational mode dial to playback mode [▶]. (P29)

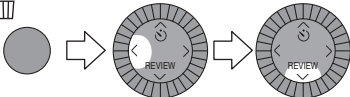
■ To delete single picture

1 Select the picture to be deleted.



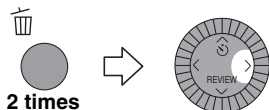
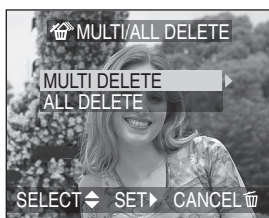
- Press ◀ to play back the previous picture.
- Press ▶ to play back the next picture.

2 Delete the picture.

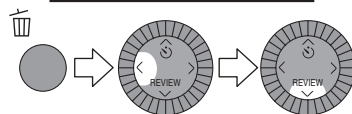
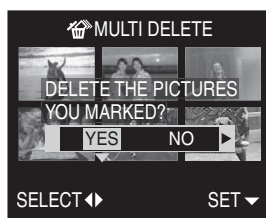


■ To delete multi pictures

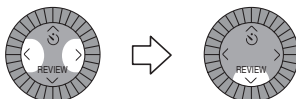
1 Select [MULTI DELETE].



3 Delete the pictures.



2 Select the pictures to be deleted.

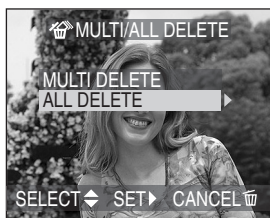


- The selected pictures appear with [🗑️]. When ▼/[REVIEW] is pressed again, the setting is cancelled.
- The icon [📷] blinks red if the selected picture cannot be deleted. Cancel the protect setting. (P84)

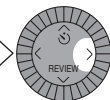
- It is possible to delete up to 50 pictures all at once.

■ To delete all pictures

1 Select [ALL DELETE].



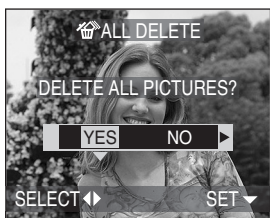
2 times



◇ Suggestions/Tips ◇

- Once deleted, pictures cannot be recovered. Please double-check before deleting pictures.
- Pictures that are protected (P84) or not of DCF standards (P52) are not deleted.
- Do not turn off the camera while deleting.
- When the remaining battery power (P10) is low, use the AC adaptor.

2 Delete all of the pictures.



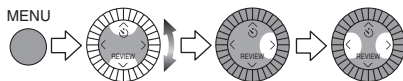
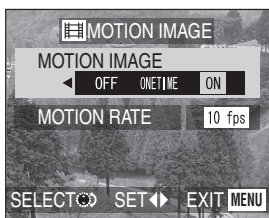
Recording Motion Images

You can record motion images with audio.

Preparation

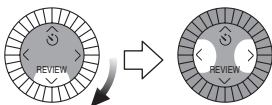
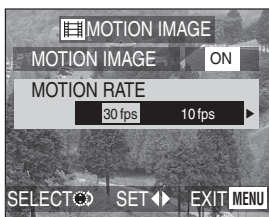
- Set the operational mode dial except for [REVIEW]. (P29)

1 Select [MOTION IMAGE] and set the desirable mode.



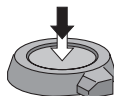
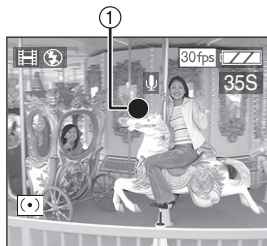
- [OFF]: Sets to the still picture recording mode.
- [ONE TIME]: Sets to the still picture recording mode when you finish the motion image recording or turn the camera off.
- [ON]: Sets to the motion image recording mode.

2 Select [MOTION RATE] and set the motion rate.



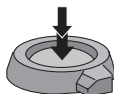
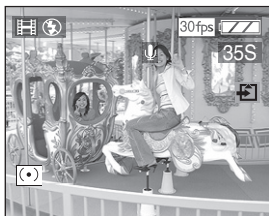
- [30 fps]: The motion of recorded image is smooth, but the file size is large.
- [10 fps]: The file size is smaller so you can record motion images for a longer time.
- fps (frame per second): This means the number of frames used in 1 second.
- Close the menu by pressing the [MENU] button 2 times after finishing the setting.

3 Press the shutter button halfway.



- When the subject is focused, the focus indication ① lights.

4 Press the shutter button fully to start the recording.



- The audio recording starts simultaneously from the built-in microphone of the camera.
- By pressing the shutter button fully again, the recording stops.
- If the memory of the card becomes full during recording, the recording stops automatically.

Available recording time

SD Memory Card Capacity	Motion rate	
	10 fps	30 fps
16 MB	83 sec.	26 sec.
32 MB	177 sec.	59 sec.
64 MB	365 sec.	123 sec.
128 MB	742 sec.	253 sec.
256 MB	1482 sec.	508 sec.
512 MB	2989 sec.	1027 sec.

- The remaining recording time appears on the screen. (It is an approximation.)
- The recordable time is an approximation.

◇ Suggestions/Tips ◇

- The picture size is fixed to 320×240 pixels.
- The motion images cannot be recorded without audio.
- If you rotate the zoom ring, the focus ring or the aperture ring when recording audio (when recording motion images, pictures with audio, etc.), the rustling of the lens barrel is also recorded.
- If using the MultiMediaCard, after recording motion images, the card access indication may appear for a while, but this is not a malfunction.
- After recording starts, the auto focus/aperture values are fixed (with the first frame).
- Recording could suddenly stop depending on the type of the card when recording motion images.
- When the motion images recorded with this camera is played back on other equipment, the quality of pictures and sounds may be deteriorated or they may not be played back.
- The motion images recorded with setting [MOTION RATE] to [30 fps] cannot be played on the camera which does not support [30 fps] of motion rate.
- The review function cannot be used.
- Keep the camera away from magnetized equipment (such as a microwave oven, TV, cell phone or video game equipment, etc.). Pictures and sounds may be disturbed due to electromagnetic wave radiation.

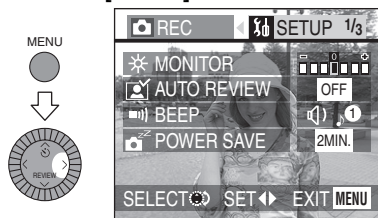
FUNCTION Menu

You can select 4 menus which you frequently use from the menus in the recording mode (P113, P114).

This allows you to select the menu and save the time to operate it at the minimum.

- The white balance, the white balance fine adjustment, the ISO sensitivity and the spot AF are included in FUNCTION menu in initial setting.

1 Select [SETUP].



2 Select [CUSTOM SET.].



3 Select the menu to be replaced from [FUNCTION] menu.

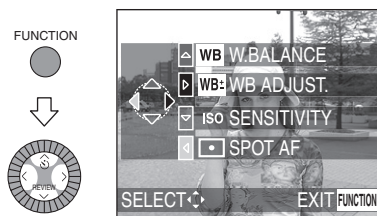


4 Select the menu to be added to [FUNCTION] menu.



- Press ◀ to cancel.
- Press the [MENU] button 2 times to replace the menu.

5 Select the menu from [FUNCTION] menu.



6 Set the item.



- Press the [FUNCTION] button after finishing the setting.

Setting the White Balance

In certain situations, the colour white may appear slightly reddish or bluish. This can occur when shooting under early or late day sunlight, on a cloudy day, or under halogen lighting. By using the manual White Balance feature you can achieve a more accurate reproduction of the colour white.

Preparation

- Set the operational mode dial except for [▶]. (P29)

1 Select [W.BALANCE] and set the desirable mode.

- Close the menu by pressing the [MENU] button after finishing the setting.



MENU

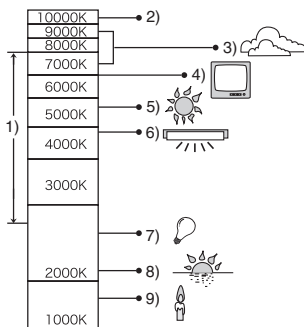


- [AUTO]:
for setting the white balance automatically (auto white balance)
- [☀] (Daylight):
for recording outdoors on a bright day
- [☁] (Cloudy):
for recording under a cloudy and shady sky
- [💡] (Halogen):
for recording under halogen lighting
- [⚡WB] (Flash):
for taking a picture with photo flash only
- [B/W] (monochrome):
for recording pictures in monochrome
- [📷] (White set):
for manual setting (Read the following page where the manual setting is explained in detail.)

Use of auto white balance adjustment in inappropriate lighting conditions may result in reddish or bluish pictures.

Where the subject is surrounded by many light sources, auto white balance adjustment may not operate properly. In this case, set the white balance to the mode except [AUTO] manually.

- 1 The range that is controlled by the auto white balance adjustment mode of this camera
- 2 Blue sky
- 3 Cloudy sky (Rain)
- 4 TV screen
- 5 Sunlight
- 6 White fluorescent light
- 7 Incandescent light bulb
- 8 Sunrise and sunset
- 9 Candlelight



K=Kelvin Colour Temperature

Setting the White Balance manually (White set)

Preparation

- Set the operational mode dial except for [▶]. (P29)

1 Select [W.BALANCE] and set to [▶].

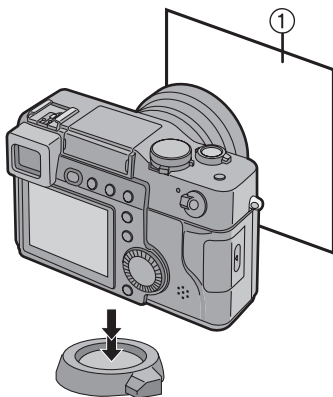


MENU



2 (Only when setting the white balance again) Press ▶.

3 Aim the camera at a sheet of white paper ① or similar object so that it completely fills the frame to white on the screen and press the shutter button fully.



- Close the menu by pressing the [MENU] button after finishing the setting.

◇ Suggestions/Tips ◇

- When setting the white balance to the mode except for [AUTO] or [B/W] (monochrome), you can finely adjust the white balance. (P64)
- The setting of the white balance is applied to the other recording modes.
- In Motion image mode, the white balance is fixed to [AUTO].
- When the white balance is set to [AUTO], the adequate white balance is automatically set by taking a picture with the flash, but the white balance may not be properly adjusted when the photo flash does not sufficiently reach to the subject.

Finely Adjusting the White Balance

If you cannot acquire the desirable hue with white balance because of too many different light sources, etc., adjust the fine white balance as follows.

Preparation

- Set the operational mode dial except for [▶]. (P29)
- Set the white balance to [☀]/[☁]/[☀]/[⚡WB]/[📷]. (P61)

1 Select [WB ADJUST.].



MENU



2 Adjust the white balance.



- ▶ [BLUE]: Press when the hue is reddish.
- ◀ [RED]: Press when the hue is bluish.
- Close the function by pressing ▼/[REVIEW] after finishing the adjustment.

◇ Suggestions/Tips ◇

- The white balance icon turns red or blue.
- You can set the value independently for each of the modes in white balance.
- When you set the white balance using the White set [📷], the adjustment level is set to "0".
- The adjusted picture will be close, though may not be identical to the actual picture.

Changing the Picture Size

Preparation

- Set the operational mode dial except for [REVIEW]. (P29)

1 Select [PICT.SIZE] and set the picture size.



◇ Suggestions/Tips ◇

- In Motion image mode, the picture size is fixed to 320×240 pixels.
- If you playback pictures recorded using [HDTV] mode on a High-Definition TV, (HDTV has 16:9 aspect) the picture quality will be higher. An SD Memory Card can be played on TVs with an SD Memory Card slot.

MENU



- [2560]: 2560×1920 pixels
- [2048]: 2048×1536 pixels
- [1600]: 1600×1200 pixels
- [1280]: 1280×960 pixels
- [640]: 640×480 pixels
- [HDTV]: 1920×1080 pixels
- Close the menu by pressing the [MENU] button after finishing the setting.

Changing the Quality




“Quality” refers to the amount each image is compressed. Lower compression results in superior picture quality. Higher compression allows you to store more images on your SD Memory card.

Preparation

- Set the operational mode dial except for [REVIEW]. (P29)

1 Select [QUALITY] and set the quality.



- [RAW]**: RAW file
Set this when altering the pictures on a PC.
-  Super Fine
(Lower compression)
Set this when recording the pictures with higher quality than that of Fine.
-  Fine (Low compression)
It gives priority to picture quality to record high quality pictures.
-  Standard
(High compression)
It gives priority to the number of recordable pictures and records standard quality pictures.
- Close the menu by pressing the [MENU] button after finishing the setting.

◇ Suggestions/Tips ◇

- It may happen that pictures appear like a mosaic depending on the subject or recording condition.
- Refer to P119 for the number of recordable pictures.
- When the quality is set to [RAW]
 - A JPEG file is also created simultaneously. Its quality is equal to FINE and its size is fixed to 2560×1920 pixels.
 - When the RAW file is deleted, the created JPEG file is also deleted.
 - The digital zoom is fixed to [OFF].
 - When you take pictures in programme AE mode, aperture-priority AE mode and shutter-priority AE mode, the JPEG picture is underexposed a little.
 - The picture cannot be recorded on the card with low capacity.
- The number of remaining frames may not correspond with recorded frames.
- RAW file format is designed for use in digital imaging applications, sold separately, that can support direct manipulation of the data captured by the camera sensor. At the time of this writing, support for the Panasonic RAW file format is included in the latest version of the Camera Raw plug-in for Adobe Photoshop CS. For more information, access <http://www.adobe.com/>
- If you take pictures when the quality is set to [RAW], you can open RAW files with ArcSoft PhotoImpression in the supplied CD-ROM.

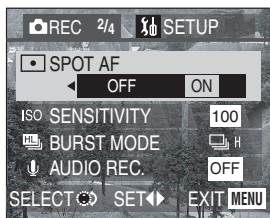
Taking Pictures using the Spot AF

The focus is adjusted within the limited range.

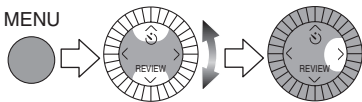
Preparation

- Set the operational mode dial except for [P]. (P29)

- Select [SPOT AF] and set it to [ON].

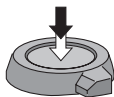
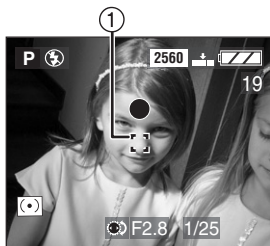


MENU



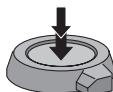
- Close the menu by pressing the [MENU] button after finishing the setting.

- Aim the spot AF area to the subject to be recorded and press the shutter button halfway for the AF/AE lock.



- The spot AF area [] ① appears.

- Move the camera to compose the picture fixing the focus on the subject and take the picture.



◇ Suggestions/Tips ◇

- When the subject is dark, it may not be focused properly.

Setting ISO Sensitivity

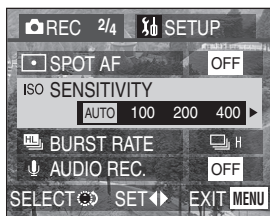
The ISO setting sets the cameras sensitivity to light. The ISO setting can be increased when you need to take pictures in places where a flash may not be allowed. The overall picture quality will decrease slightly as the ISO setting is increased.

ISO sensitivity	100	← → 400
Use in bright places (E.g. outdoors)	Suitable	Not suitable
Use in dark places	Not suitable	Suitable
Shutter speed	Slow	Fast
Noises	Less	Increase

Preparation

- Set the operational mode dial except for [REVIEW]. (P29)

1 Select [SENSITIVITY] and set the ISO sensitivity.



MENU



- When the ISO sensitivity is set to [AUTO], it is automatically adjusted from ISO100 to ISO200 according to the brightness.
- Close the menu by pressing the [MENU] button after finishing the setting.

◇ Suggestions/Tips ◇

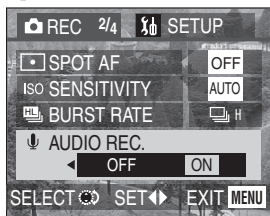
- In Motion image mode, ISO sensitivity is fixed to [AUTO].
- To avoid noises, we recommend decreasing the ISO sensitivity or setting each item on [PICT.ADJ.] to [LOW]. (P72)

Taking Pictures with Audio

Preparation

- Set the operational mode dial except for []/[]. (P29)

1 Select [AUDIO REC.] and set it to [ON].

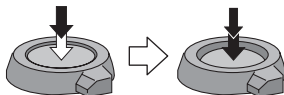
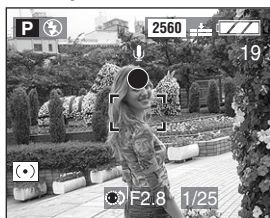


MENU



- Close the menu by pressing the [MENU] button after finishing the setting.

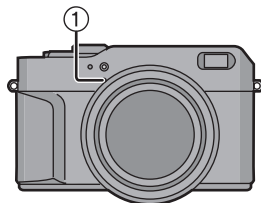
2 Take the picture.



- 5 seconds after, the audio recording is stopped automatically.
- If you press the [MENU] button during the audio recording, it will be cancelled. The audio cannot be recorded.

◇ Suggestions/Tips ◇

- It is not necessary to keep pressing the shutter button.
- Audio is recorded from the built-in microphone ① of the camera.



- When audio is recorded with each picture the total number of pictures that can be stored on each card will be slightly decreased.
- You cannot take pictures with audio in the following condition.
 - When using the auto bracket
 - In burst mode
 - When setting the quality to [RAW]
- If you rotate the zoom ring, the focus ring or the aperture ring when recording audio (when recording motion images, pictures with audio, etc.), the rustling of the lens barrel is also recorded.

Using the Digital Zoom

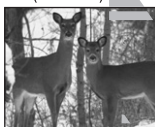
Preparation

- Set the operational mode dial except for [REVIEW]. (P29)

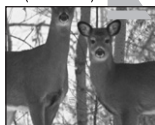
3.2× (90 mm)



6.4× (180 mm)



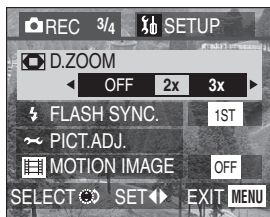
9.6× (270 mm)



◇ Suggestions/Tips ◇

- It is possible to further magnify a subject already magnified 3.2 times with the optical zoom by 3 more times, with the digital zoom, thereby reaching a maximum of 9.6 times (35 mm-camera equivalent: 90–270 mm).
- When using the digital zoom the picture quality becomes deteriorated.
- We recommend to use a tripod when setting the digital zoom.
- The indicated zoom magnification is an approximation.
- When the quality is set to [RAW], the digital zoom is fixed to [OFF].

- Select [D.ZOOM] and set it to [2×] or [3×].



MENU



- Close the menu by pressing the [MENU] button after finishing the setting.

Setting to the 2nd Curtain Synchro

The 2nd curtain synchro is the method that the photo flash activates just before the shutter is released when you take pictures of the subject with motion using slow shutter and the photo flash.

The light source appears at the back of the subject and the picture becomes dynamic.

Preparation

- Set the operational mode dial except for [P]. (P29)

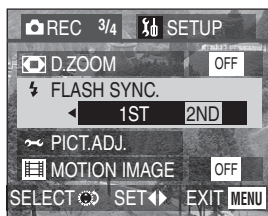
1st curtain synchro



2nd curtain synchro



1 Select [FLASH SYNC.] and set it to [2ND].



- Set it to [1ST] normally.
- Close the menu by pressing the [MENU] button after finishing the setting.

◇ Suggestions/Tips ◇

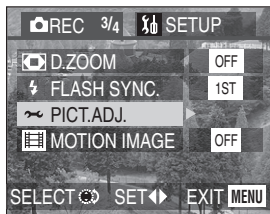
- When the shutter speed is fast, the 2nd curtain synchro may not be effective.

Adjusting the Quality of the Picture (Picture Adjustment)

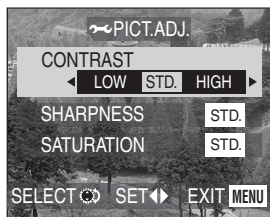
Preparation

- Set the operational mode dial except for [REVIEW]. (P29)

1 Select [PICT.ADJ.].



2 Select [CONTRAST], [SHARPNESS] and [SATURATION] respectively.



- [CONTRAST]:
HIGH: Increases the difference between the brightness and the darkness in the picture.
LOW: Decreases the difference between the brightness and the darkness in the picture.
- [SHARPNESS]:
HIGH: The picture is sharply defined.
LOW: The picture is softly focused.
- [SATURATION]:
HIGH: The colours in the picture become vivid.
LOW: The colours in the picture become natural.
- Close the menu by pressing the [MENU] button 2 times after finishing the setting.

◇ Suggestions/Tips ◇

- When you take pictures in dark places, noises may become visible. To avoid noises, we recommend setting each item on [PICT.ADJ.] to [LOW].

Creating Flip Animation

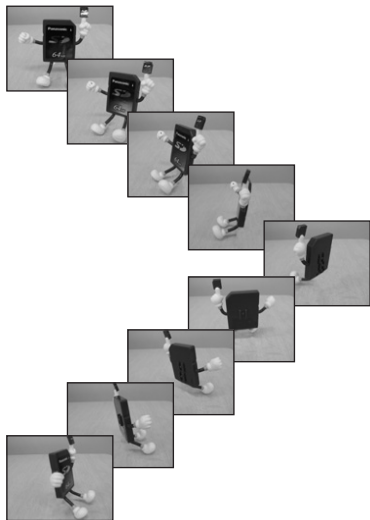
This camera allows you to create motion picture files up to 20 seconds by connecting images recorded in flip animation mode.

Preparation

- Set the operational mode dial except for [▶]. (P29)

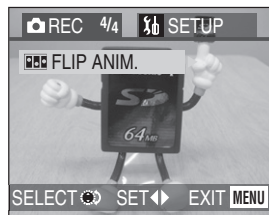
Example:

When capturing images of the subject in sequence moving it little by little and aligning the images, the subject looks as if it were moving.



Capturing images

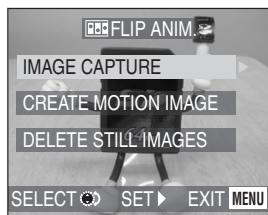
1 Select [FLIP ANIM.].



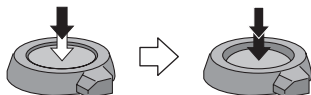
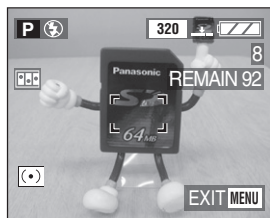
MENU



2 Select [IMAGE CAPTURE].



3 Capture images for flip animation.



- You can take up to 100 pictures.

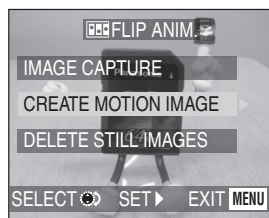
4 Check the image.



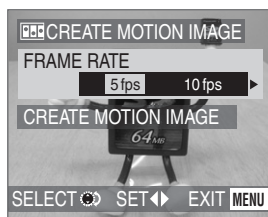
- You can check the previous or following image with $\blacktriangleleft/\blacktriangleright$.
- Delete unnecessary images with [DELETE] button.

Creating motion images

5 Select [CREATE MOTION IMAGE].

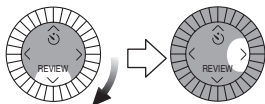
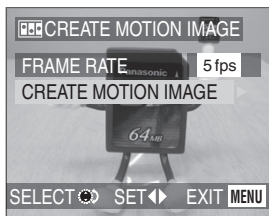


6 Select [FRAME RATE] and set the number of frames.



- [5 fps]: 5 frames/sec.
- [10 fps]: 10 frames/sec.

7 Select [CREATE MOTION IMAGE] and create a flip animation.



- The file number appears for about 1 second after creating a flip animation.
- Including the created images, the flip animation is counted as 1 animation image.
- Close the menu by pressing the [MENU] button 3 times after finishing the setting.

■ Playing back a created flip animation

Follow the same procedure as you play back motion images. (P77)

■ Deleting all of still pictures used for flip animation

When selecting [DELETE STILL IMAGES] in flip animation screen, a confirmation screen appears. Select [YES] and then press ▼/[REVIEW].

◇ Suggestions/Tips ◇

- Flip animations are created as motion image files. (Extension: .MOV)
- The number of pixel is 320×240.
- You cannot use pictures with audio, burst mode and auto bracket.
- The images in each frame do not appear in normal review. (P42)
- Flip animations may not be played by other equipment.
- Audio cannot be recorded on flip animations. However, you may hear noises when playing back with other equipment without a mute function.
- The number of recordable images is an approximation.

Playing Back Pictures with Audio

Preparation

- Set the operational mode dial to playback mode [▶]. (P29)

1 Select the picture with audio icon [▶].



◇ **Suggestions/Tips** ◇

- The picture with audio cannot be resized (P89) or trimmed (P91).

2 Play back the audio.



- You can hear audio from the speaker.
- To adjust the sound volume, refer to P25.

Playing Back Motion Images

Preparation

- Set the operational mode dial to playback mode [▶]. (P29)

1 Select the picture with the motion image icon [REVIEW].



2 Play back the motion images.



- Motion image playback stops and the normal playback is restored by pressing ▼/[REVIEW].
- The icon ① is corresponding to the ▲/▼/◀/▶.

Fast forwarding/Fast rewinding

During motion image playback, continue pressing ◀/▶.

▶: Fast forward

◀: Fast rewind

- When releasing the button, it turns to normal motion image playback.

To pause

Press ▲ during motion image playback.

- Press ▲ again to cancel pause.

- To adjust the sound volume, refer to P25.

◇ Suggestions/Tips ◇

- You cannot use the zoom function while playing back or pausing motion images.
- The file format that can be played back with this camera is QuickTime Motion JPEG.
- Some QuickTime Motion JPEG files recorded by a PC or other equipment may not be played back with this camera.
- When playing back motion images that have been recorded with other equipment, the quality of images may be deteriorated or the images may not be able to be played back.
- When using a high capacity card, it is possible that fast rewinding may be slower than usual.

Rotating the Picture

You can rotate the recorded pictures in increments of 90°. This is a convenient function to play back pictures on TV.

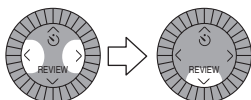
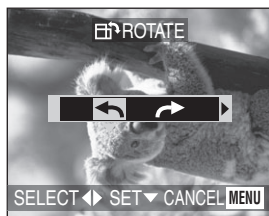
Preparation

- Set the operational mode dial to playback mode []. (P29)

1 Select [ROTATE].



2 Select the direction to rotate the picture.

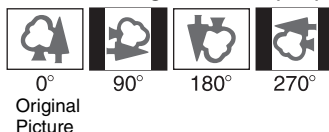


- []: The picture rotates counterclockwise in increments of 90°.
- []: The picture rotates clockwise in increments of 90°.

- Close the menu by pressing the [MENU] button after finishing the setting.

Example

When rotating clockwise ()



◆ Suggestions/Tips ◆

- Still pictures can only be rotated in normal playback. When playing back rotated pictures in zoom playback or multi playback, pictures appear in original angle.
- The recording date and time of the picture is changed to the date when you rotate the picture.
- Rotated pictures appear on a PC only when an OS or a software compatible with Exif is installed in the PC.
- Exif is the file format for still pictures, to which can be added recording information and other, established by JEITA [Japan Electronics and Information Technology Industries Association].
- Pictures with setting the quality to [RAW] and protected pictures cannot be rotated.

Setting the Picture to be Printed and the Number of Prints (DPOF Print Setting)

DPOF (Digital Print Order Format) is a system that allows the user to select which pictures are to be printed on compatible photo printers. DPOF also allows the user to set how many copies of each picture will be printed. Many commercial photo printing services now use DPOF.

Preparation

- Set the operational mode dial to playback mode [▶]. (P29)

Single setting/cancel

1 Select [DPOF PRINT].



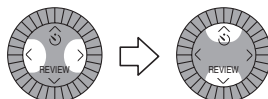
MENU



2 Select [SINGLE].



3 Select the picture and set the number of prints.



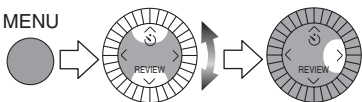
- The number of prints can be set from 0 to 999.
- The number of prints icon [1] appears.
- When the number of prints is set to "0", DPOF print setting is cancelled.
- Close the menu by pressing the [MENU] button 2 times after finishing the setting.

Multi setting/cancel

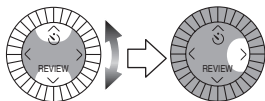
1 Select [DPOF PRINT].



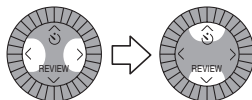
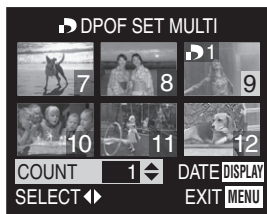
MENU



2 Select [MULTI].



3 Select the pictures and set the number of prints.



- The number of prints can be set from 0 to 999.
- The number of prints icon [D] appears.
- Repeat step 3.
- When the number of prints is set to "0", DPOF print setting is cancelled.
- Close the menu by pressing the [MENU] button 2 times after finishing the setting.

■ To cancel all settings

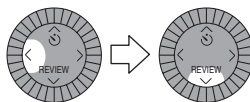
1 Select [DPOF PRINT].



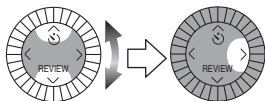
MENU



3 Select [YES] to cancel all settings.



2 Select [CANCEL].



- Close the menu by pressing the [MENU] button after cancelling the setting.

Index setting/cancel

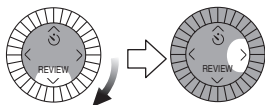
1 Select [DPOF PRINT].



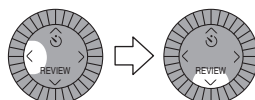
MENU



2 Select [INDEX].

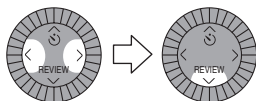


3 Select [YES] to index setting.



- Close the menu by pressing the [MENU] button after finishing the setting.

■ When the index is already set



- Close the menu by pressing the [MENU] button after finishing the setting.

■ To print the date

You can set/cancel the printing with the recorded date each press of the [DISPLAY] button when setting the number of prints.



- The date print icon [**DATE**] appears.
- When you ask photo studios for printing, be sure to order the printing of the date.
- The date may not be printed depending on photo studios or printers even if you set the date print. For further information, ask the photo studios or refer to the operating instructions of the printer.

◇ Suggestions/Tips ◇

- DPOF print setting is a convenient function when you print pictures with printers supporting DPOF printing.
- DPOF is the abbreviation for Digital Print Order Format. This feature allows you to designate which pictures will be printed.
- The setting of DPOF print will not be applied to the DPOF setting of Slide Show.
- If the file is not based on the DCF standard, the DPOF print setting cannot be set. DCF is an abbreviation of [Design rule for Camera File system], stipulated by JEITA [Japan Electronics and Information Technology Industries Association].
- When setting the DPOF print, this camera will overwrite any previous DPOF print settings made by other equipment.

Preventing Accidental Erasure of the Picture

Preparation

- Set the operational mode dial to playback mode [▶]. (P29)

Single setting/cancel

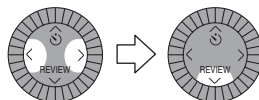
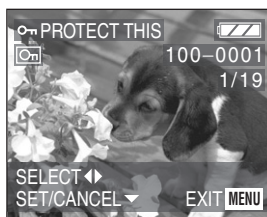
1 Select [PROTECT].



2 Select [SINGLE].



3 Select the picture and set/cancel the protection.



- [SET]:
The protect icon [🔒] appears.
- [CANCEL]:
The protect icon [🔒] disappears.
- Close the menu by pressing the [MENU] button 2 times after finishing the setting.

■ Multi setting/To cancel all settings

Perform the same operation as in [Setting the Picture to be Printed and the Number of Prints (DPOF Print Setting)]. (P79–P81)

◇ Suggestions/Tips ◇

- While this feature protects the pictures from accidental erasure, formatting the card will permanently delete all data. (P93)
- If you want to delete protected pictures, cancel the protect setting first.
- The protect setting may not be effective in other equipment.
- Sliding the SD Memory Card Write-Protect switch to [LOCK] (P14) prevents the picture from deletion even if the protection is not set.
- You cannot rotate or use the audio dubbing (P88) for protected pictures.

Playing Back with Slide Show

Preparation

- Set the operational mode dial to playback mode [▶]. (P29)

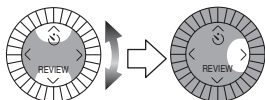
1 Select [SLIDE SHOW].



MENU

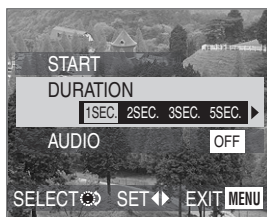


2 Select the type of pictures to play back.



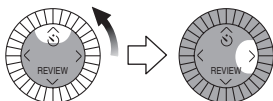
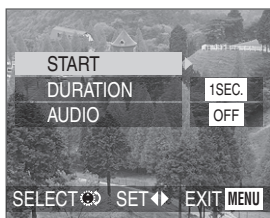
- [ALL]:
for playing back all pictures
- [DPOF]:
for playing back the pictures
DPOF Slide Show is set

3 Select the following items.



- [DURATION]:
It can be set among 1, 2, 3 and 5 seconds.
- [AUDIO]:
By setting it to [ON], the audio of the pictures with audio can be played back during Slide Show.
- [DPOF SET] (Only when setting to [DPOF]):
You can select the pictures you want to set to the Slide Show.
- [CANCEL ALL] (Only when setting to [DPOF]):
You can cancel the DPOF Slide Show setting.

4 Select [START].



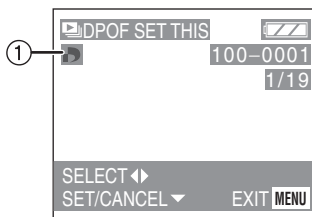
5 By pressing the [MENU] button, the Slide Show stops.

SD Slide Show

If setting the SD Slide Show with the [SD Viewer for DSC] which is in the supplied CD-ROM, when playing back, the confirmation screen appears. Select [YES] and press ▼/[REVIEW] to start the SD Slide Show. Select [NO] and press ▼/[REVIEW] to start normal playback.

◇ Suggestions/Tips ◇

- When setting the DPOF Slide Show, DPOF icon ① appears on the picture in green.
- When setting the DPOF Slide Show to the picture with DPOF printing, both of DPOF icon ① and the number of prints appear on the picture in green.
- When only the DPOF printing is set on the picture, the DPOF icon ① and the number of prints appear in white.



- In motion image playback, Slide Show is not available.
- The DPOF setting of Slide Show will not be applied to the DPOF printing.
- DPOF Slide Show cannot be performed without the DPOF setting of Slide Show.
- DPOF setting with the [SD Viewer for DSC] in the supplied CD-ROM is only for printing. Please set DPOF Slide Show with this camera to play back pictures in DPOF Slide Show.
- When setting the DPOF Slide Show, this camera will overwrite any previous DPOF settings made by other equipment.

Adding Audio to Recorded Pictures (Audio Dubbing)

Preparation

- Set the operational mode dial to playback mode [▶]. (P29)

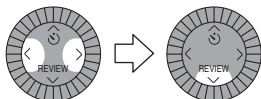
1 Select [AUDIO DUB.].



MENU



2 Select the picture and start audio recording.



- When audio has already been recorded, the confirmation screen appears. Press ◀ to select [YES], and press ▼/[REVIEW] to start audio recording. (The original audio is overwritten.)

- The audio dubbing cannot be used with motion images, pictures with setting the quality to [RAW] or protected pictures.

3 Stop audio recording.



- Even if you do not press ▼/[REVIEW], after about 10 seconds the audio recording stops automatically.
- Close the menu by pressing the [MENU] button 2 times after finishing the setting.

Resizing the Pictures

This function is useful if you want to reduce the file size of the picture, in those cases when it needs to be attached to an E-mail or uploaded to a web site.

Preparation

- Set the operational mode dial to playback mode [▶]. (P29)

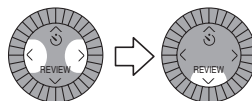
1 Select [RESIZE].



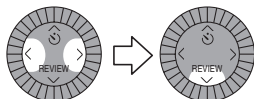
MENU



3 Select the size and set it.

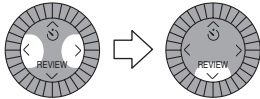


2 Select the picture and set it.



- [2048]: 2048×1536 pixels
- [1600]: 1600×1200 pixels
- [1280]: 1280×960 pixels
- [640]: 640×480 pixels

4 Select [YES] or [NO] and set it.



- When you select [YES], the picture is overwritten.
- When the original picture is protected, you cannot overwrite the resized picture.
- When resized pictures are overwritten, they cannot be restored.
- Close the menu by pressing the [MENU] button 2 times after finishing the resizing.

◇ **Suggestions/Tips** ◇

- The following pictures cannot be resized.
 - Pictures not over 640×480 pixels
 - Pictures recorded with setting the picture size to [HDTV]
 - Pictures with setting the quality to [RAW]
 - Motion images
 - Flip animation
 - Pictures with audio
 - Rotated pictures (You can resize them if you turn them back.)
- It may not be possible to resize the pictures recorded with other equipment.

Trimming the Pictures

Preparation

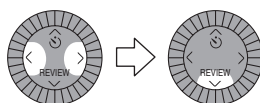
- Set the operational mode dial to playback mode [▶]. (P29)



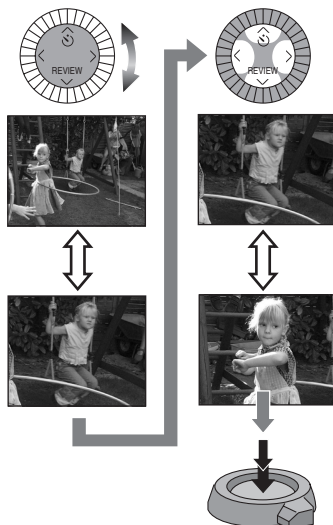
1 Select [TRIMMING].



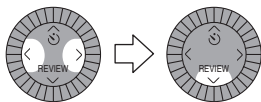
2 Select the picture to trim.



3 Enlarge/decrease or shift the picture.



4 Select [YES] or [NO] and set it.



- When you select [YES], the picture is overwritten.
- When the original picture is protected, you cannot overwrite the resized picture.
- When trimmed pictures are overwritten, they cannot be restored.
- Close the menu by pressing the [MENU] button 2 times after finishing the trimming.

◇ Suggestions/Tips ◇

- The following pictures cannot be trimmed.
 - Pictures smaller than 640×480 pixels
 - Pictures recorded with setting the picture size to [HDTV]
 - Pictures with setting the quality to [RAW]
 - Motion images
 - Flip animation
 - Pictures with audio
 - Rotated pictures (You can trim them if you rotate them back.)
- It may not be possible to trim pictures recorded with other equipment.
- The picture size of the trimmed pictures may become smaller than that of the original one depending on the cut size.
- The picture quality of the trimmed picture may be deteriorated.
- You cannot use the remote shutter when setting the trimming parts.

Formatting the Card

Preparation

- Set the operational mode dial to playback mode [▶]. (P29)

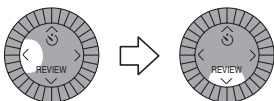
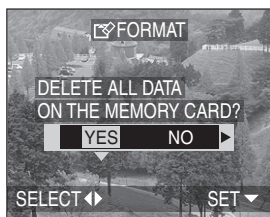
1 Select [FORMAT].



MENU



2 Select [YES] to format.



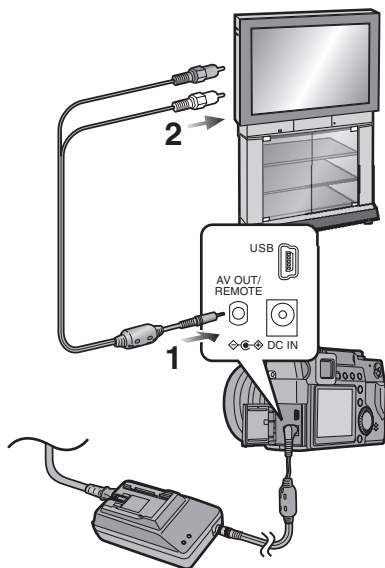
◇ Suggestions/Tips ◇

- Usually, it is not necessary to format the card (initializing). Format the card when the message [MEMORY CARD ERROR] appears.
- If the card has been formatted by a PC or other equipment, format the card on the camera again.
- After formatting, recorded pictures and any other data cannot be recovered.
- If the card is formatted all images and data will be permanently erased. They cannot be reclaimed. If any important pictures are on the card, please copy them to your PC before proceeding.**
- During formatting, do not turn the camera off.
- When the remaining battery power (P10) is low, use the AC adaptor.
- If the card is protected, you cannot format the card.
- If the card cannot be formatted, consult your nearest servicentre.

Playing Back Pictures with a TV Screen

■ Playing back pictures with AV cable (supplied)

- Turn the camera and the TV off.



1 Connect the AV cable to the [AV OUT/REMOTE] socket of the camera.

2 Connect the AV cable to the video input and the audio input sockets of the TV.

- Yellow: to the video input socket
- White: to the audio input socket

3 Turn the TV on and select external input.

4 Turn the camera on and then set to playback mode [▶].

■ Viewing pictures in other countries

When setting [VIDEO OUT] on the menu (P25), you can view pictures on a TV in other countries (regions) which use the NTSC or PAL system.

■ Playback pictures on TV with SD Memory Card slot

An SD Memory Card can be played back on TVs with an SD Memory Card slot.

If you play back pictures recorded using [HDTV] mode on a High-Definition TV, (HDTV has 16:9 aspect) the picture quality will be higher.

◇ Suggestions/Tips ◇

- When connecting to a TV, we recommend using the AC adaptor as the power source.
- Use the supplied AV cable only.
- The image is displayed on the TV only in playback mode.
- Read the TV operating instructions too.
- When you set the video output to [PAL], if connecting/disconnecting the AV cable in playback mode, the following occur.
 - The screen becomes dark for a moment.
 - During playing back motion images, images and sounds are interrupted.

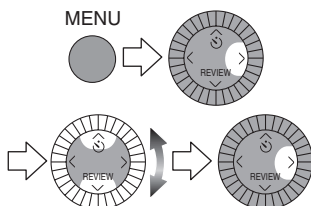
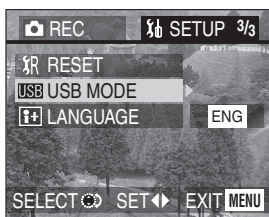
Before Connecting with USB Connection Cable

Select the USB communication system according to the OS of your PC or your printer before connecting them to the camera with the USB connection cable (supplied).

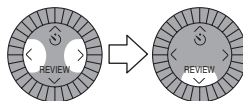
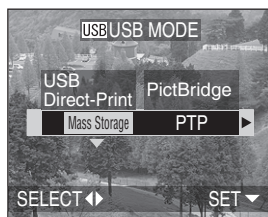
Set the items on [USB MODE] in the [SETUP] menu. (P25)

1 Select [USB MODE].

(In the recording mode)



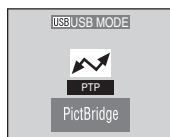
2 Select [Mass Storage] or [PTP].



USB mode	PC to be connected	Printer to be connected
Mass Storage (USB Direct-Print)	Windows® XP Home Edition, Windows XP Professional, Windows 2000 Professional, Windows Me, Windows 98/98 SE or Mac OS X (10.1 or above), Mac OS 9.x	Printers supporting USB Direct-Print
PTP (PictBridge)	Windows XP Home Edition, Windows XP Professional or Mac OS X	Printers supporting PictBridge

■ When using Windows 2000 Professional, Windows Me, Windows 98/98 SE or Mac OS 9.x

- When connecting the camera to a PC, do not set [USB MODE] to [PTP].
(When the camera is shipped, [Mass Storage] is selected.)
- When using [Mass Storage] on Windows 98/98 SE, install the USB driver before connecting. (When using Windows Me/2000/XP, Mac OS 9.x and Mac OS X, you do not have to install the USB driver.)
- When connecting to the PC which includes the above-mentioned OS with setting the [USB MODE] to [PTP], the messages shown on the right appear on the LCD monitor of the camera.

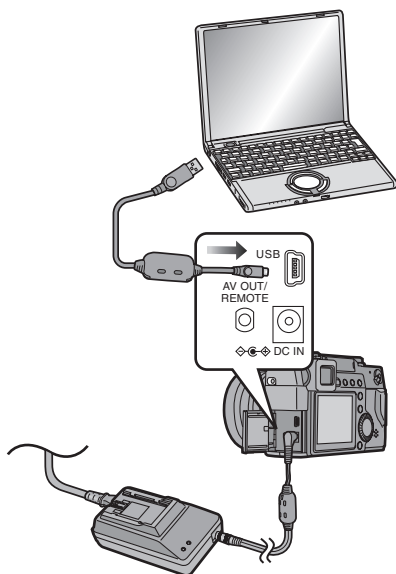


The following messages appear for each OS on the display of the PC. Select [Cancel] to close the window and disconnect the USB connection cable.

OS	Message
Windows 2000 Professional	[Welcome to the Found New Hardware Wizard]
Windows Me Windows 98/98 SE	[New Hardware Found]→ [Add New Hardware Wizard] (When you connect to the PC more than 2 times, only [Add New Hardware Wizard] appears.)
Mac OS 9.x	[Software needed for the USB device "DMC-LC1" is not available. Would you like to look for the software on the Internet?]

Connecting to a PC (Mass Storage)

When you connect to the camera to a PC supporting USB 2.0 (High Speed), you can transfer the data with higher speed in a shorter period of time.



1 Turn the camera on and then set [USB MODE] to [Mass Storage]. (P95)

2 Connect the camera to a PC via the USB connection cable (supplied).



[Windows]

The drive appears on the [My Computer] folder.

- If it is the first time for you to connect the camera to a PC, the required driver is installed automatically so that the camera can be recognized by the Windows Plug and Play, then it appears on the [My Computer] folder.

[Macintosh]

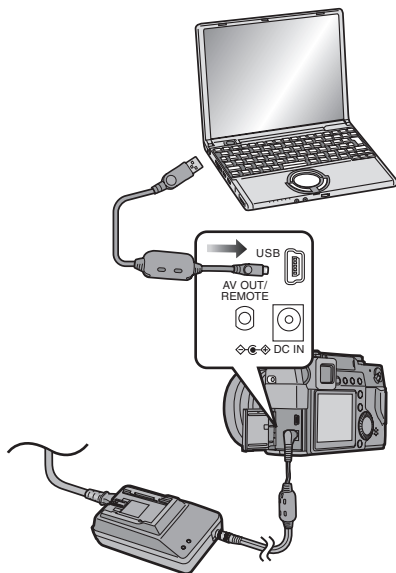
The drive is shown on the screen.

◆ Suggestions/Tips ◆

- When connecting to a PC, we recommend using the AC adaptor as the power source.
- If the remaining battery power becomes low during communication, the power indicator blinks and the alarm beeps. In this case, stop the communication. Then turn the camera off and charge the battery.
- When connecting to a PC, pictures and sounds are not output from the [AV OUT/REMOTE] socket.
- Use the supplied USB connection cable only.
- When you connect the camera to a PC supporting USB 2.0 (High Speed), be careful of the followings.
 - When you connect 2 or more USB devices to a PC, or you connect the camera with a USB hub or USB extension cables, normal operation is not guaranteed.
 - When you connect the camera to the USB terminal on a key board, it may not be operated properly.
- Also refer to the operating instructions of a PC.

Connecting to a PC (PTP)

Do not follow the setting below on the OS except for Windows XP and Mac OS X.



- If it is the first time for you to connect the camera to a PC, the required driver is installed automatically so that the camera can be recognized by the Windows Plug and Play, then the camera icon appears on the [My Computer] folder.

[Macintosh]

You can read pictures with image capture or iPhoto.

- 1 Turn the camera on and then set [USB MODE] to [PTP]. (P95)
- 2 Connect the camera to a PC via the USB connection cable (supplied).



[Windows]

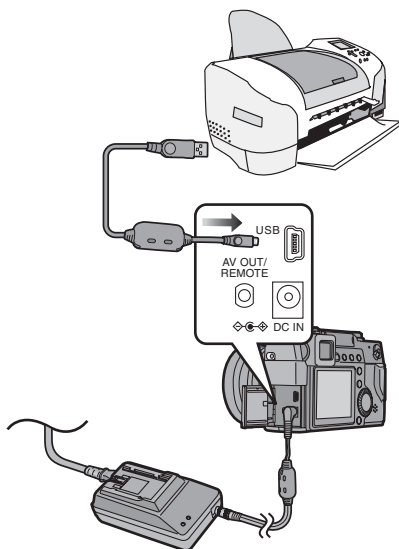
The camera icon appears on the [My Computer] folder.

◇ **Suggestions/Tips** ◇

- Refer to P96 carefully when connecting to the OS except for Windows XP and Mac OS X with setting [USB MODE] to [PTP].
- When connecting to a PC, we recommend using the AC adaptor as the power source.
- If the remaining battery power becomes low during communication, the power indicator blinks and the alarm beeps. In this case, stop the communication. Then turn the camera off and charge the battery.
- When connecting to a PC, pictures and sounds are not output from the [AV OUT/REMOTE] socket.
- It may take time to display the communication screen depending on the PC.
- You can only load pictures from the camera and cannot write them on the card or delete them.
- Use the supplied USB connection cable only.
- When there are 1000 or more pictures on the card, the pictures may not be imported.
- When the PC recovers from the standby mode while connecting it to a camera with USB connection cables, they may not properly communicate each other.

Connecting to a Printer

By connecting the camera directly to a printer supporting PictBridge or USB Direct-Print via the USB connection cable (supplied), you can select the pictures to be printed or start printing.



◆ Suggestions/Tips ◆

- Ask the manufacturer of the printer about the corresponding models. (Read the printer operating instructions too.)
- If the remaining battery power becomes low during communication, the power indicator blinks and the alarm beeps. In this case, stop the communication. Then turn the camera off and charge the battery.
- When connecting to a printer, we recommend using the AC adaptor as the power source.
- Disconnect the USB connection cable and DC cable after printing.
- Use the supplied USB connection cable only.

1 Turn the camera on and then set the [USB MODE] to [Mass Storage] (USB Direct-Print) or [PTP] (PictBridge). (P95)

2 Turn on a printer.

3 Connect the camera to a printer via the USB connection cable (supplied).

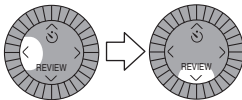
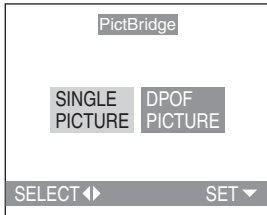
Using a Printer (PictBridge)

Preparation

- Connect the camera to a printer. (P100)
- The paper size cannot be changed depending on the printer. For details, refer to the operating instructions of the printer.

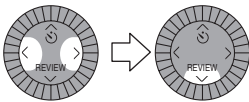
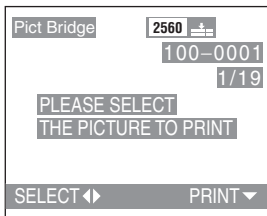
Single picture

1 Select [SINGLE PICTURE].

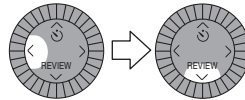
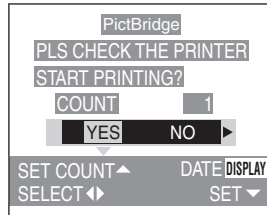


- The screen shown in step 2 appears when DPOF print is not set or the printer does not support DPOF print.

2 Select the picture to print.



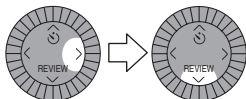
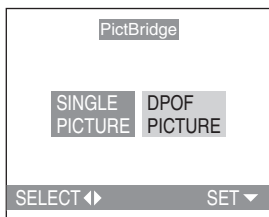
3 Select [YES] and print.



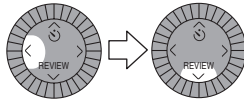
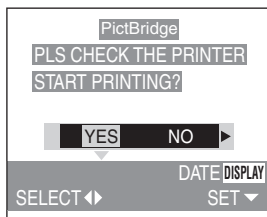
- Press the [DISPLAY] button to print the date. (Only when connecting to the printer supporting to printing the date.)
- Press ▲ and then press ◀/▶ to set the number of prints. Press ▼/[REVIEW] to print pictures.
- Press the [MENU] button to cancel printing.

Preparation

- Connect the camera to a printer. (P100)
- Set the DPOF print with this camera in advance. (P79)
- The paper size cannot be changed depending on the printer. For details, refer to the operating instructions of the printer.

DPOF picture**1 Select [DPOF PICTURE].**

- Press the [MENU] button, and you can change the DPOF print setting. (P79)

2 Select [YES] and print.

- Press the [DISPLAY] button to print the date. (Only when connecting to the printer supporting to printing the date.)
- Press the [MENU] button to cancel printing.

◇ Suggestions/Tips ◇

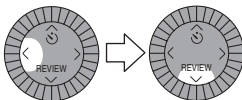
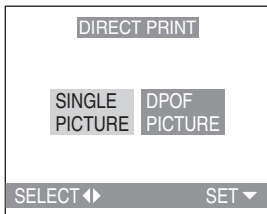
- When the total number of prints becomes 1000 or more, the number of remaining pictures may appear as [---] on the screen.
- When connecting to a printer not supporting DPOF, DPOF printing cannot be set. (The DPOF print selecting screen does not appear.)
- Do not disconnect the USB connection cable when the cable disconnection warning icon [⚡] is indicated.
- When the [●] indication lights in yellow during printing, the camera receives an error message from the printer. Check if there is no malfunction on the printer after finishing the printing.
- When the printer does not support the date printing by DPOF setting, the date may not be printed as it is on date setting in DPOF setting.
- The setting on the printer may have priority over the setting on the camera in the date print. Also check the date print setting on the printer.

Using a Printer (USB Direct-Print)

- Connect the camera to a printer. (P100)
- Set the paper size and print quality. (Read the printer operating instructions.)

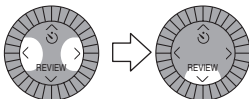
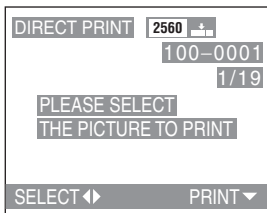
Single picture

1 Select [SINGLE PICTURE].

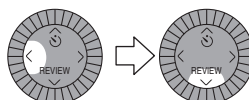
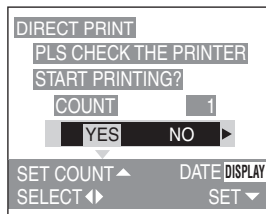


- The screen shown in step 2 appears when DPOF print is not set.

2 Select the picture to print.



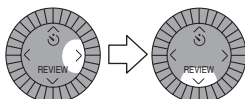
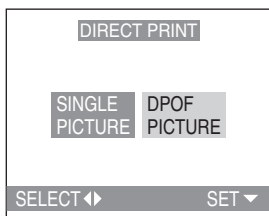
3 Select [YES] and print.



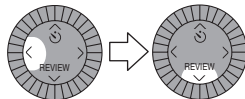
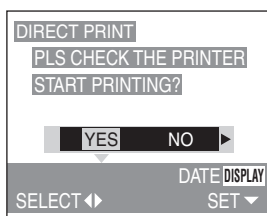
- Press the [DISPLAY] button to print the date.
- Press ▲ and then press ◀▶ to set the number of prints. Press ▼/[REVIEW] to print pictures.
- Press the [MENU] button to cancel printing.

Preparation

- Connect the camera to a printer. (P100)
- Set the DPOF print with this camera in advance. (P79)
- Set the paper size and print quality. (Read the printer operating instructions.)

DPOF picture**1 Select [DPOF PICTURE].**

- Press the [MENU] button, and you can change the DPOF print setting. (P79)
- When printing under the new settings, disconnect the USB connection cable and connect it to the printer again.

2 Select [YES] and print.

- Press the [DISPLAY] button to print the date.
- Press the [MENU] button to cancel printing.

◇ Suggestions/Tips ◇

- When the total number of prints becomes 255 or more, the number of remaining pictures appears as [---] on the screen.
- When you set the date print setting by pressing the [DISPLAY] button, the date is printed regardless of the date print setting on DPOF setting. (P83)
- When the printer does not support the date printing by DPOF setting, the date may not be printed as it is on date setting in DPOF setting.
- The setting on the printer may have priority over the setting on the camera in the date print. Also check the date print setting on the printer.

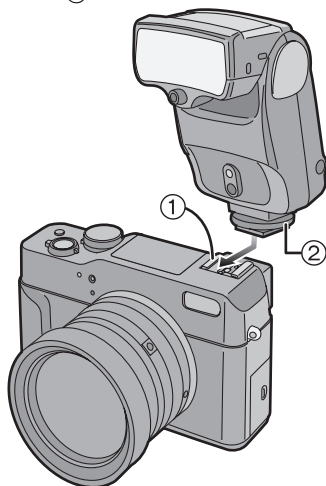
Using the External Flash

After installing the optional flash, DMW-FL28, the effective range will be increased when compared to the camera's built in flash.

Preparation

- Set the operational mode dial except for [P]. (P29)

1 Attach the external flash to the hot shoe ①.



- Tighten the lock screw ② of the external flash firmly.
- Be sure to turn on the external flash after attaching to the camera.

Switch the external flash setting



Icon	Setting
	External flash Auto
	External flash Forced ON

	External flash Slow sync.
	External flash Forced OFF

Available external flash settings

	A	M
	○	—
	○	○
	○	—
	○	○





- Set to the aperture-priority AE mode [A] or the manual exposure mode [M] on the camera and then set the same aperture value and ISO sensitivity on the external flash. (The exposure cannot be compensated adequately due to the change on the aperture value in the shutter-priority AE mode [S] and the external flash cannot control the light adequately in programme AE mode [P] because the aperture value cannot be fixed.)
- The available flash range is 14 m in DMW-FL28. (When setting to ISO100)

■ Using the specified external flashes

- When you use the following external flashes, the information about the ISO sensitivity, the aperture value or other on the camera is transferred to the flash and then you can use various functions of the flash such as the adjustment of the range of the light control according to the aperture value or the display of the range of the light control.

Flashes	Adaptor	Conditions
Metz 54MZ-3	SCA3502	AUTO
Metz 44MZ-2	SCA3502	AUTO
Metz 70MZ-5	SCA3502	AUTO
LEICA SF-20	Not needed	AUTO
LEICA SF-24D	Not needed	AUTO, TTL-GNC

■ Available external flash settings

	P	A	S	M
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	—
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<input type="radio"/>	<input type="radio"/>	—	—
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- Set the mode on the external flash to either of Auto or Manual. (The [TTL] mode cannot be activated properly. However, TTL/GNC mode can be also used for SF-24D only.)
- Any exposure mode can be set on the camera.
- Different aperture values may be displayed between the camera and the external flash, but flash can be activated properly.

◆ **Suggestions/Tips** ◆

- You can set the aperture value, the shutter speed and the ISO sensitivity on the camera even when attaching the external flash.
- Some commercial external flashes have synchro terminals with high-voltage or reversed polarity. Using such external flashes may cause a malfunction or the camera may not operate normally. Be sure to use Panasonic's external flash (DMW-FL28) or specified external flash (Metz 54MZ-3, 44MZ-2, 70MZ-5, LEICA SF-20, SF-24D).
- If using other external flash units, please make sure the flash is designed for use with a digital camera and the trigger voltage is based on ISO 10330 (less than 24 volts).
- When attaching the external flash, the shutter speed becomes 1/60th to 1/250th in normal mode, 1 to 1/250th in Slow sync. [].
- External flash mode is selected when attaching the external flash to the camera even if the external flash is turned off. Detach the external flash when you are not using it.
- When attaching the external flash, the built-in flash cannot be activated.
- When attaching the external flash, the camera becomes unstable to be put.
- Detach the external flash when carrying the camera.
- When attaching the external flash, do not hold only the external flash because it may drop off the camera.
- When using the external flash and setting the white balance to [] (Flash), finely adjust the white balance. (P64)
- If you take pictures close to the subject in Wide, the vignetting effect may appear on the bottom of the recorded picture.
- Pictures may be overexposed with the external flash in [AF-Macro]. In this case, use the built-in flash.
- Read the operating instructions of the external flash for details.

Using the Wide Conversion Lens/Close-up Lens

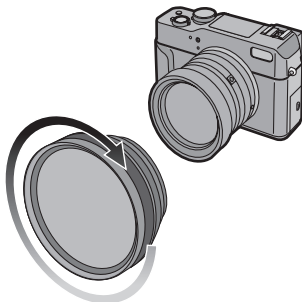
The wide conversion lens (DMW-LW69, optional) allows you to take pictures with wider range of focus than usual (0.82 times, 35 mm-camera equivalent: 23 mm). The close-up lens (DMW-LC69, optional), if fitted onto the camera, will give a sharper close-up image. Its multi-coated lens provides a clearer picture.

Preparation

- Set the operational mode dial except for [P] (P29)
- Check if the camera is turned off.

■ Using the wide conversion lens

1 Attach the wide conversion lens.



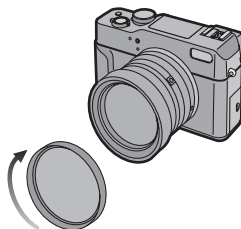
- Rotate the lens slowly and carefully.

■ Recordable range when using the wide conversion lens

- AF: 44 cm – ∞
- MF/AF-Macro: 20 cm – ∞

■ Using the close-up lens

1 Attach the close-up lens.



- Rotate the lens slowly and carefully.

■ Recordable range when using the close-up lens

- AF: 22 cm – 33 cm
- MF/AF-Macro: 16 cm – 33 cm

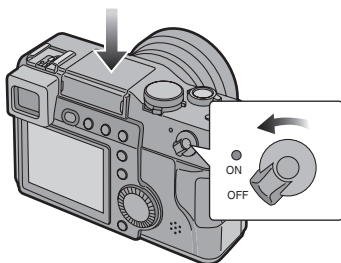
◆ **Suggestions/Tips** ◆

- When using the wide conversion lens, rotate the zoom ring to Wide (35 mm-camera equivalent: 28 mm). If you rotate the zoom ring to other position, the performance of the lens may not be brought out.
- Check if the lens cap is removed before attaching the wide conversion lens.
- If you use the built-in flash when using the wide conversion lens, take pictures with bounce flash. (P45)
- Read the operating instructions of the wide conversion lens or close-up lens for details.
- When using the close-up lens, you cannot use the MC protector, the lens cap and the lens hood.
- When using the wide conversion lens or close-up lens, it may take time to focus on the subject.

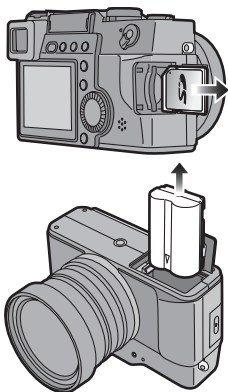
After Use

After using the camera, it is recommended that you complete the following steps:

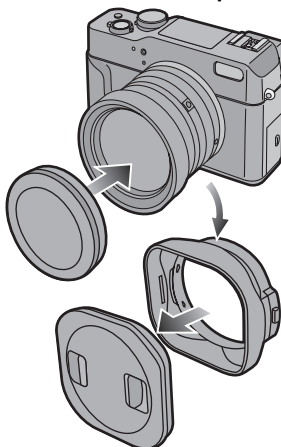
- 1 Turn the camera off and close the flash.



- 2 Remove the card and the battery. (P12, P16)



- 3 Remove the hood cap and the lens hood (only when using it) and then attach the lens cap.

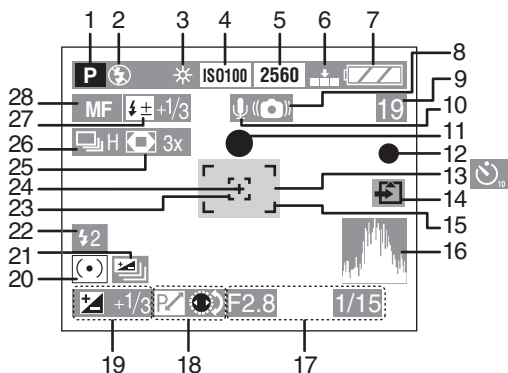


- When removing the lens hood, push the knob on the lens hood and then slide it to the front.

◇ Suggestions/Tips ◇

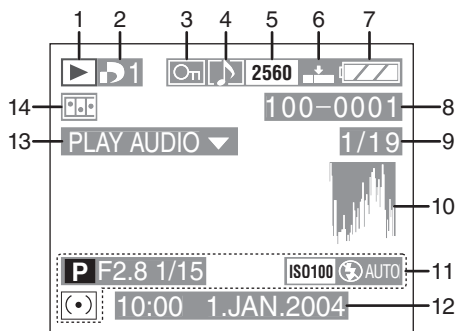
- If you will not be using the camera for a long time,
 - Remove the battery. (When you insert the battery again, set the clock.)
 - Do not keep the camera in a place where it will be subjected to high temperatures, high humidity or soot. Fungus may be attached to the lens and the camera or condensation may occur.
 - Keep the camera in a cool, dry and well-ventilated place and avoid storing near dust or chemicals.
 - We recommend keeping it in a closed case with the desiccant.

Screen Display



In recording

- | | |
|--|--|
| 1 Exposure mode (P30) | 21 Auto bracket (P48) |
| 2 Flash (P44) | 22 2nd curtain synchro indication (P71) |
| 3 White balance (P61) | 23 Spot AF area (P67) |
| 4 ISO sensitivity (P68) | 24 Spot metering target (P29) |
| 5 Picture size (P65) | 25 Digital zoom (P70) |
| 6 Quality (P66) | 26 Burst (P50) |
| 7 Battery indication (P10) | 27 Flash output adjustment (P45)/
External flash (P105) |
| 8 Jitter alert indication (P36) | 28 MF/AF-Macro indication (P40) |
| 9 Frame/Time remain
In Motion image mode: e.g. 11S | |
| 10 Audio recording (P69) | • Current date and time appear for
about 5 seconds after turning the
camera on or setting the clock. (P20) |
| 11 Focus indication (P34) | |
| 12 Recording indication | |
| 13 Self-timer (P49) | |
| 14 Card access indication (P14) | |
| 15 AF area (P34) | |
| 16 Histogram (P28) | |
| 17 Aperture indication/Shutter speed
indication (P34) | |
| 18 Programme shift indication (P38) | |
| 19 Exposure compensation (P47) | |
| 20 Metering mode (P29) | |

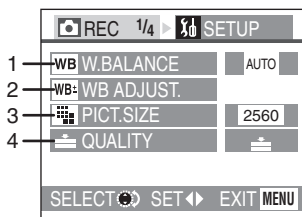


■ In playback

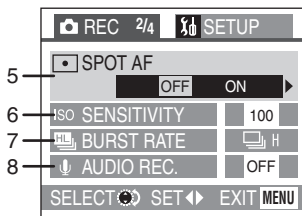
- 1 : Playback mode
- 2 DPOF [] (P79, P86)
 (White):
DPOF setting for printing
 (Green):
DPOF setting for Slide Show
 (Green with number of prints):
DPOF setting for printing and Slide Show
- 3 Protected picture (P84)
- 4 Picture with audio (P76)
- 5 Picture size (P65)
: In Motion image mode
- 6 Quality (P66)
: In Motion image mode
- 7 Battery indication (P10)
- 8 Folder/File number
- 9 Page number/Total pictures
- 10 Histogram (P28)
- 11 Recording information
- 12 Recorded date and time
- 13 Audio playback (P76)
: In Motion image mode (P77)
- 14 Flip animation (P73)

The Menu Items

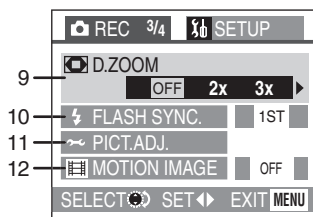
■ [REC] mode menu



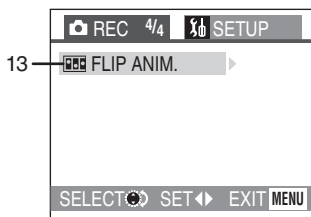
- 1 W.BALANCE (P61)
- 2 WB ADJUST. (P64)
- 3 PICT.SIZE (P65)
- 4 QUALITY (P66)



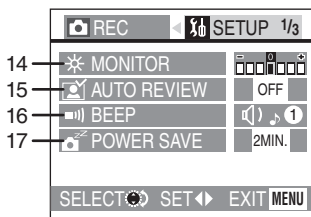
- 5 SPOT AF (P67)
- 6 SENSITIVITY (P68)
- 7 BURST RATE (P50)
- 8 AUDIO REC. (P69)



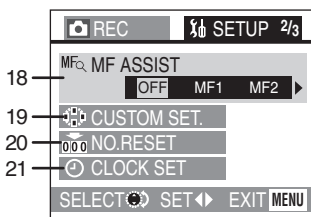
- 9 D.ZOOM (P70)
- 10 FLASH SYNC. (P71)
- 11 PICT.ADJ. (P72)
- 12 MOTION IMAGE (P58)



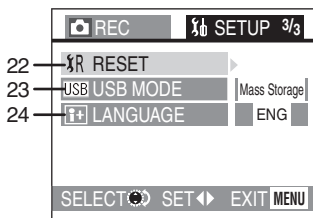
- 13 FLIP ANIM. (P73)



- 14 MONITOR/FINDER (P23)
 - The screen (LCD monitor or Viewfinder) you select appears as a menu item.
- 15 AUTO REVIEW (P23)
- 16 BEEP (P24)
- 17 POWER SAVE (P24)



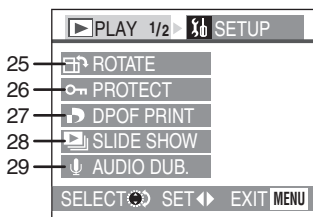
- 18 MF ASSIST (P40)
- 19 CUSTOM SET. (P60)
- 20 NO.RESET (P24)
- 21 CLOCK SET (P20)



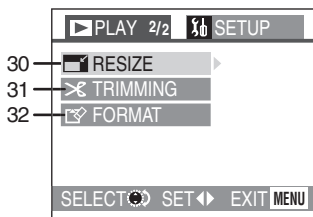
- 22 RESET (P25)
- 23 USB MODE (P95)
- 24 LANGUAGE (P25)

■ [PLAY] mode menu

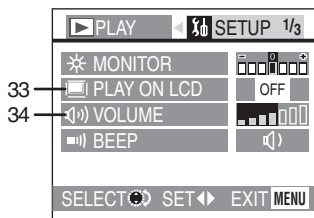
- For items without numbers, refer to those with the same name in [REC] mode menu.



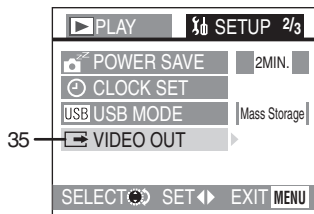
- 25 ROTATE (P78)
- 26 PROTECT (P84)
- 27 DPOF PRINT (P79)
- 28 SLIDE SHOW (P86)
- 29 AUDIO DUB. (P88)



- 30 RESIZE (P89)
- 31 TRIMMING (P91)
- 32 FORMAT (P93)



- 33 PLAY ON LCD (P25)
- 34 VOLUME (P25)



- 35 VIDEO OUT (P25, P94)

Cautions for Use

In the event of abnormal operation (e.g. if the unit emits smoke or an unusual smell), immediately stop operating the unit and consult the Panasonic Customer Care Centre on 132600.

■ Optimal Use of the Camera

Keep the camera away from magnetized equipment (such as a microwave oven, TV, cell phone, video game equipment, etc.).

- If you use the camera on or near a TV, pictures and sounds may be disturbed due to electromagnetic wave radiation.
- Do not use the camera near a cell phone because doing so may cause noise to adversely affect the pictures and sounds.
- Recorded data may be damaged, or pictures may be distorted by strong magnetic fields created by speakers or large motors.
- Electromagnetic wave radiation generated by a microprocessor may adversely affect the camera, causing the disturbance of pictures and sounds.
- If the camera is affected by magnetically charged equipment and does not function properly, turn the camera off and remove the battery or disconnect the AC adaptor and then insert the battery or connect the AC adaptor again. Thereafter, turn the camera on.

Do not use the camera near radio transmitters or high-voltage lines.

- If you record near radio transmitters or high-voltage lines, recorded pictures or sounds may be adversely affected.

Do not spray insecticides or volatile chemicals onto the camera.

- If the camera is sprayed with such chemicals, the camera body may be damaged and the surface finish may peel off.
- Do not keep rubber or plastic products in contact with the camera for a long period of time.

When you use the camera on a rainy or snowy day or on a beach or similar place, do not let grit, fine dust or seawater get into the camera.

- Grit or dust may damage the camera or card. (Care should be taken when inserting and removing the card.)
- If seawater splashes onto the camera, wet a soft cloth with tap water, wring it well, and use it to wipe the camera body carefully. Then, wipe it again thoroughly with a soft, dry cloth.

When carrying this camera, take care not to drop or hit it.

- The outer case may be destroyed by the strong shock, and it may cause malfunction of this camera.
- For storing or transporting the camera, place it in a bag or case lined with soft pads to prevent the coating on the camera body from being worn.

Do not use benzine, thinner or alcohol for cleaning the camera.

- Before cleaning the camera, remove the battery or disconnect the AC adaptor from the electrical outlet.
- The camera body may be deformed and the surface finish may peel off.
- Wipe the camera with a soft, dry cloth. To remove stubborn stains, wipe with a cloth that is soaked in a detergent diluted with water and afterward finish wiping with a dry cloth.

If you will not be using the camera for a long time, be careful of the fungus.

- Do not keep the camera in a place where it will be subjected to high temperatures, high humidity or soot. Fungus may be attached to the lens and the camera or condensation may occur.
- Keep the camera in a cool, dry and well-ventilated place and avoid storing near dust or chemicals.
- We recommend keeping it in a closed case with the desiccant.

Condensation

When using the camera outdoors during very cold weather, condensation can form on the camera and lens when you return to a warm place.

When condensation has taken place: Turn the camera off and leave the camera in this condition for about 2 hours. When the camera becomes close to the ambient temperature, the condensation disappears naturally.

Optimal Use of the Battery

The battery is a rechargeable lithium ion battery. Its ability to generate power is based upon the chemical reaction that takes place inside it. This reaction is susceptible to the surrounding temperature and humidity, and, if the temperature is too high or too low, the operating time of the battery will be shorter.

If you drop the battery accidentally, check to see if the battery body and terminals are deformed.

Inserting a deformed battery to the camera may damage the camera.

Be sure to remove the battery when you do not use the camera for a long period of time.

If it is left inserted to the camera, a minute amount of current is consumed even when the camera is turned off. If the battery is left inserted in the camera for a long time, discharge takes place. The battery may become unusable even after it is charged.

Dispose of an unusable battery.

- The battery has a limited life.
- Do not throw the battery into fire because it may cause an explosion.

■ Cautions for Storage

Before storing the camera, remove the card and the battery.

Store all the components in a dry place with a relatively stable temperature.

(Recommended temperature:

15°C to 25°C,

Recommended humidity: 40% to 60%)

Battery

- Do not leave the camera and the battery at the place where the temperature is too high, such as inside a car during the summer.
- Extremely high or low temperatures will shorten the life of the battery.
- If the battery is kept in smoky or dusty places, the terminals may rust and cause malfunctions.
- Do not allow the battery terminals to come in contact with metal objects (such as necklaces, hairpins, etc.). This can result in a short circuit or heat generation and, if you touch the battery in this condition, you may be badly burned.
- Store the battery in a completely discharged state. To store the battery for a long period of time, we recommend charging it once every year and storing it again after you completely use up the charged capacity.

Card

- Do not leave the card in places where there is high temperature or direct sunlight, or where electromagnetic waves or static electricity are easily generated.
- Do not bend or drop the card. The card or the recorded content may be damaged.
- After use, be sure to remove the card from the camera.
- Do not touch the terminals on the back of the card with your fingers. Do not allow dirt, dust or water to enter it.

AC adaptor

- If you use the AC adaptor near a radio, radio reception may be disturbed. Keep the AC adaptor 1 m or more away from radio.
- When the AC adaptor is in use, it may generate whirring sounds. However, this is not a malfunction.
- After use, be sure to disconnect the AC cable. (If it is left connected, a minute amount of current is consumed.)
- Keep the terminal of the AC adaptor and battery clean.

■ Screen

LCD monitor

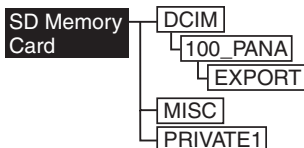
- In a place with drastic temperature changes, condensation may form on the LCD monitor. Wipe it with a soft, dry cloth.
- If the camera is extremely cold when you turn the camera on, the image on the LCD monitor is slightly darker than usual at first. However, as the internal temperature increases, it goes back to the normal brightness.

Viewfinder

- Do not direct the Viewfinder or lens to the sun. Internal components may be seriously damaged.

Folder Composition

When a Memory Card with data recorded on it is inserted into a PC, the folders shown below will appear.



- In the [100_PANA] folder it is possible to record up to 999 pictures.
- In the [MISC] folder it is possible to record the files that have been set with DPOF settings.
- The files recorded in flip animation function are stored in [PRIVATE1] folder.
- The motion images created by flip animation function are store in [100_PANA] or other folder.

Printing pictures recorded with HDTV mode

When you print pictures recorded by setting the picture size to [HDTV] (1920×1080 pixels), both ends of the pictures may be cut out.

To print pictures with ends:

When you order photo studios to print pictures:

- Ask the photo studio if the pictures can be printed with both ends.

When you print pictures with your printer:

- When using the printer with a trimming feature or a feature which cuts out both edges of the pictures, cancel the feature for printing.
- The feature depends on the printer used. Refer to the operating instructions of the printer for details.

Motion Image

The auto focus and the aperture value are fixed to the value set when you start the recording (the value set on the first frame). Therefore, the following phenomena may appear.

Conditions	Phenomena
When the subject is changed from the far one to the close one with activating the auto focus.	The subject is not focused properly.
When you take a picture in the place where you have to change the aperture value after starting recording.	The recorded picture is overexposed or underexposed.
When you start recording soon after changing the field angle.	
Immediately after you finished recording motion images	The brightness of the LCD monitor is temporarily changed.

Approximate number of recordable pictures and the size

Picture size	2560×1920				2048×1536		
Quality	RAW						
16 MB	1	3	5	11	4	9	18
32 MB	2	7	12	24	9	19	37
64 MB	5	15	25	50	19	39	77
128 MB	11	30	51	101	40	79	156
256 MB	23	61	102	202	80	159	312
512 MB	46	123	206	408	161	320	628

Picture size	1600×1200			1280×960			640×480		
Quality									
16 MB	7	14	29	11	22	43	37	69	129
32 MB	15	31	61	24	47	90	78	145	270
64 MB	32	63	125	49	96	184	161	298	553
128 MB	65	128	252	100	195	372	326	602	1118
256 MB	131	255	503	200	390	743	650	1200	2229
512 MB	264	515	1014	403	785	1497	1309	2418	4491

Picture size	1920×1080 (HDTV)		
Quality			
16 MB	6	13	26
32 MB	14	28	55
64 MB	29	58	113
128 MB	60	118	230
256 MB	120	236	459
512 MB	241	476	924

- If you mix , and , the number of recordable pictures changes.
- The number of recordable pictures changes depending on the subject.
- The number of remaining frames may not correspond with recorded frames.

Message Display

[NO MEMORY CARD]

Insert the card.

[THIS MEMORY CARD IS PROTECTED]

Cancel the card lock.

[NO VALID IMAGE TO PLAY]

Play back after recording or after inserting the card with a recorded picture.

[MEMORY CARD FULL]/ [NOT ENOUGH MEMORY IN THE CARD]

Insert a new card or delete the unnecessary data.

[PLEASE CLOSE THE FLASH]

Be sure to close the flash after use.

[MEMORY CARD DOOR OPEN]

Close the card door.

[PLEASE SET THE CLOCK]

This message appears when you use the camera for the first time or you do not use the camera for a long time. Set the clock.

[THIS PICTURE IS PROTECTED]

After cancelling the protect setting, you can delete or overwrite the picture.

[THIS PICTURE CAN'T BE DELETED]/[SOME PICTURES CAN'T BE DELETED]

The pictures not based on the DCF standard cannot be deleted.

[CAN'T BE SET ON THIS PICTURE]/ [CAN'T BE SET ON SOME PICTURES]

If the pictures are not based on the DCF standard, the DPOF print cannot be set.

[NO ADDITIONAL DELETE SELECTIONS CAN BE MADE]

You have exceeded the number of pictures that can be set at once with multi-delete setting.

[MEMORY CARD ERROR FORMAT THIS CARD?]

The format of the card cannot be recognized by this camera. Format the card again with this camera.

[SYSTEM ERROR]

This message appears when a malfunction occurs on the operation of the lens. Turn the camera off and on. If the message persists, contact the dealer or your nearest servicentre.

[MEMORY CARD ERROR]

(It may take time to display this message depending on the card.)
Failed access to the card.
Insert the card again.

[READ ERROR]

Data reading error.
Play it back again.

[WRITE ERROR]

Data writing error.
Turn the camera off and remove the card. Then insert the card and turn the camera on again. Be sure that the camera is turned off before removing or inserting the card to avoid damage.

[PLEASE WAIT]

This message appears when shutter speed is slow or the camera becomes warm.

Troubleshooting

1: The camera is not turned on.

1-1: Are the battery inserted or the AC adaptor correctly connected?
Check the connection.

1-2: Is the battery sufficiently charged?
Use the battery that has been sufficiently charged.

2: As the camera is turned on, it turns off immediately.

2: Is the battery charge insufficient to operate the camera?
Use the battery with charged one.

3: The brightness of the screen changes dark or bright for a moment.

3: This phenomenon appears when pressing the shutter button halfway to set the aperture value and does not affect the recorded pictures.

4: The picture cannot be recorded.

4-1: Is the card inserted?

4-2: Is the operational mode dial correctly set? Check it.

4-3: There is no memory capacity left on the card. Before recording, delete some pictures.

5: The picture is not displayed on the screen.

5: Is the lens cap attached? Detach it before turning on the camera in recording mode.

6: The screen is too bright or dark.


6: Adjust the brightness of the screen.

7: The colour of the screen is unusual.


7: Colour around the subject with high luminance may look different

while you press the shutter button halfway. This is not a malfunction. This is caused by adjusting the aperture value.

8: Flash is not activated.

8: Is the flash closed?
Press the [ OPEN] button to open the flash.

9: Unreadable language was selected by mistake.

9: Select [] icon on the [SETUP] menu to set the desired language.

10: The indication of the aperture value and the shutter speed are not changed though we take pictures with auto bracket.

10: When the compensation range of the exposure is reduced, the indications are not changed. However, the actual aperture value and the shutter speed are different from the indicated values.

11: The subject is not focused properly.


11-1: Is the subject out of the focus range? (P36)

11-2: When you cannot focus on the subject even if you tried many times, once turn the camera off and turn it on again.

12: The picture is not played back.

12-1: Is the card inserted?

12-2: Is there a picture in the card?

12-3: Is the operational mode dial set to playback []?

13: The picture does not appear on the television.

13-1: Is the camera connected to the TV correctly?
Check it.

13-2: Set the TV to video input mode.

14: When connecting to a PC, pictures cannot be transferred.

14-1: Is the camera connected to the PC correctly?
Check it.

14-2: Is the camera recognized by the PC correctly?

14-3: Is the USB mode set correctly?

15: The clock setting is reset.

15-1: If you do not use the camera for a long time, the clock setting may be reset. When the message [PLEASE SET THE CLOCK] appears, set the clock again.

15-2: When you take a picture before setting the clock, [0:00 0. 0. 0] is recorded.

16: Some pixels are inactive or always lit on the LCD monitor.

16: This is not a malfunction. These pixels do not affect the recorded pictures.

17: The pictures cannot be printed with printers supporting USB Direct-Print or PictBridge.

17: Is the USB mode set correctly?

18: When there are bright parts on the subject, a vertical red spectrum may appear on the screen.

18: This is called smear. It is specific to CCD, not a malfunction. It is recorded on motion images, but not recorded on still pictures.

19: The stripe is displayed on the screen.

19: It does not affect the recorded pictures.

20: The camera may chatter when it is turned on or off.

20: This is not a malfunction. This is caused by opening or closing the aperture.

Specifications

Digital Camera

Information for your safety

Power Source:	DC 8.4 V
Power Consumption:	3.0 W (When recording with LCD Monitor) 2.5 W (When recording with Viewfinder) 1.7 W (When playing back with LCD Monitor) 1.2 W (When playing back with Viewfinder)
Camera Effective pixels	5,000,000 pixels
Image sensor	2/3 inch CCD, total pixel number 5,240,000 pixels, Primary colour filter
Lens	Optical 3.2× zoom, f=7.0–22.5 mm (35 mm film camera equivalent: 28–90 mm)/F2.0–2.4
Digital zoom	Single: 3×, Burst: 3×
Focus	Contrast sensor combined use Auto/Macro/Manual/ Spot AF
Focus range	AF: 60 cm–∞ MF/AF-Macro: 30 cm–∞
Shutter system	Electronic shutter+Mechanical shutter
Burst recording	2.7 frames/second (high speed burst), max. 9 frames (standard)/max. 5 frames (fine)/max. 3 frames (super fine) (When setting to 2560×1920 pixels) (Performance is only with SD Memory Card. MultiMediaCard performance will be less.)
Motion image recording	320×240 pixels (30 or 10 frames/second with audio. The maximum recording time depends on the capacity of the card.)
ISO sensitivity	AUTO/100/200/400
Shutter speed	Programme AE (P)/Aperture-priority AE (A): 2–1/4,000 sec. Shutter-priority AE (S)/Manual exposure (M): 8–1/2,000 sec. Motion image mode: 1/30 sec.–1/4,000 sec.
Metering range	EV 1–EV 19
White balance	AUTO/Daylight/Cloudy/Halogen/Flash/Monochrome/ White set
Exposure (AE)	Programme AE (P)/Aperture-priority AE (A)/ Shutter-priority AE (S)/Manual exposure (M) Exposure compensation (1/3 EV Step, –2–+2 EV)
Metering mode	Multiple/Centre weighted/Spot
LCD monitor	2.5 inch low-temperature polysilicon TFT transfective LCD (210,000 pixels) (field of view: Approx. 100%)
Viewfinder	Colour electrical Viewfinder (235,000 pixels) (field of view: Approx. 100%) (with diopter adjustment –4–+4 diopter)
Flash	Built-in pop up flash Flash range: (ISO AUTO) Approx. 50 cm–4.8 m (Wide)/ Approx. 50 cm–4 m (Tele)

	AUTO, AUTO/Red-eye reduction, Forced ON, Forced ON/Red-eye reduction, Slow sync., Slow sync./Red-eye reduction, Forced OFF
Microphone	Monaural
Speaker	Monaural
Recording media	SD Memory Card/MultiMediaCard
Picture size	2560×1920 pixels, 2048×1536 pixels, 1600×1200 pixels, 1280×960 pixels, 640×480 pixels, 1920×1080 pixels (Still picture) 320×240 pixels (Motion image)
Quality	RAW/Super Fine/Fine/Standard
Recording file format	
Still Picture	JPEG (Design rule for Camera File system, based on Exif 2.2 standard), DPOF corresponding
Picture with audio	JPEG (Design rule for Camera File system, based on Exif 2.2 standard)/QuickTime (picture with audio)
Motion images	QuickTime Motion JPEG (motion images with audio)
Interface	
Digital	Supporting USB 2.0 (High Speed)
Analogue video/audio	NTSC/PAL Composite/Audio line output (monaural)
Terminal	
USB	5 pin Mini USB
AV OUT/REMOTE	φ 2.5 mm jack
DC IN	Type 3 jack
Dimensions (W×H×D)	134.7×81.5×101.5 mm (excluding the projection part)
Weight	Approx. 627 g (excluding Memory Card and battery) Approx. 702 g (with Memory Card and battery)
Operating Temperature	0°C – 40°C
Operating Humidity	10% – 80%

Battery Charger/AC Adaptor**(Panasonic DE-972B)** Information for your safety

Input	110–240 V ~ 50/60 Hz, 0.3 A
Output	DIGITAL CAMERA 8.4 V --- 1.2 A CHARGE 8.4 V --- 1.2 A

Battery Pack (lithium-ion)**(Panasonic CGR-S602E)** Information for your safety

Voltage/capacity	7.2 V, 1400 mAh
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[Ⓒ]



Matsushita Electric Industrial Co., Ltd.

Web Site: <http://www.panasonic.co.jp/global/>